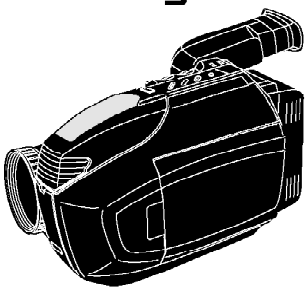
ORDER NO. MKE0001203A1
B15 (U.S.A.), B4 (PUERTO RICO)

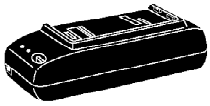
Compact VHS Camcorder

PV-L580 / PV-L680

Please use this manual together with the Service Manual for Order No. MKE0001200C1; / Model No. PV-L550/ PV-L650.

Palmcorder VHSC
PalmSight™





MODELS: PV-L580/ PV-L680 MODEL: PV-A17

SPECIFICATIONS

ITEM	SPECIFICATION	1	2	ITEM	SPECIFICATION	1	2
Power Source	Compact VHS Camcorder: DC 6 V AC Adaptor: 110/120/220/240 V AC, 50/60 Hz Battery: Nicker-Cadmium Type DC 9 V	○	○	Tape Format	Tape width 12.7 mm (0.5 inch) high density tape	○	○
				Pick-up System	Sequential color difference field reverse system	○	○
Power Consumption	Compact VHS Camcorder: 6 V DC 8.5 W (Max. 11.5 W) AC Adaptor: 24 W 1.2 W (when not in use.)	○	○	Pick-Up Device	One integral color filter Charge Coupled Device (CCD)	○	○
Video Signal	EIA Standard (525 lines, 60 fields) NTSC color signal	○	○	Lens	18 : 1 zoom lens. F1 : 1.6 with auto iris control Focal length: 3.9 mm - 70.2 mm 4 speed power zoom function Lens filter diameter: 49 mm	○	○
Video Recording System	Head: 4 rotary heads plus flying erase head. Helical scanning system Signal-to-Noise Ratio: SP: more than 43 dB SLP: more than 41 dB Horizontal Resolution (Color/Monochrome): Recording: more than 300 lines Playback: more than 230 lines	○	○	Viewfinder	10.2 mm (0.4 inch) Electronic Viewfinder	○	○
				LCD Monitor	63.5 mm (2.5 inch) Liquid Crystal Display 101.6 mm (4.0 inch) Liquid Crystal Display	○ –	– ○
Audio	Head: Normal Mono: 1 stationary head MIC Input Level (MS type) : 70 dB Frequency Response: Normal Mono: SP: 100 Hz - 8 kHz SLP: 100 Hz - 5 kHz Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB SLP: more than 40 dB	○	○	Minimum Illumination Required	0.8 lx (F1 : 1.6) 0.08 footcandles 7 lx (F1 : 1.6) 0.7 footcandles (EIA Standard)	○	○
				Operating Condition	0 °C ~ 40 °C (32 °F ~ 104 °F) (temperature) 10 % ~ 75 % (Humidity)	○	○
Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/s), SLP: 7/16 i.p.s (11.12 mm/s) Record/Playback Time: SP: Max. 30 min. SLP: Max. 90 min. with TC-30 Tape FF Time: Less than 7 min. (TC-30 Tape) REW Time: Less than 4 min. (TC-30 Tape)	○	○	Weight	1.0 kg (2.2 lbs.) 1.04 kg (2.29 lbs.)	○ –	– ○
				Dimension	106 mm x 114.5 mm x 180 mm (W x H x D) (4-1/4 inch x 4-5/8 inch x 7-1/8 inch) (W x H x D)	○	○

1. PV-L580
2. PV-L680

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

Regarding the Service Manual of the AC Adaptor for model PV-A17, please refer to the Service Manual / Order No. MKW9512M302.

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1. DIFFERENCES BETWEEN PV-L580 and PV-L550

1.1. COMPARISON CHART

1.1.1. MECHANICAL REPLACEMENT PARTS LIST

Ref. No.	Section No.	Pcs/ Set	PV-L550 → PV-L580 Part No.	Part No.	Part Name	Remarks
9	1	1	VEGS0438	VEGS0439	CYLINDER UNIT	
11	1	1	VEHW0032	VEHW0033	UPPER CYLINDER UNIT	
50	2	1	VXKS0897	VXKS0899	VCR MECHANISM CHASSIS ASS'Y	RTL
85	5	1	LSPG0748	LSPG0840	PACKING CASE, PAPER	
88	5	1	LSQF0202	LSQF0224	FAN BAG	
128	3	1	LSXM0005	LSXM0004	MICROPHONE UNIT	
130	3	1	LSEQ0553	LSEQ0554	TOP OPERATION UNIT	
151	3	1	LSKM0344	LSKM0343	SIDE CASE R, ABS RESIN	⚠
186	3	0→1	- - - - - - - -	LSKM0265	LIGHT COVER	
186	3	1→0	VGFW0020	- - - - - - - -	LIGHT PROTECTOR	
188	3	1→0	VMRW0025	- - - - - - - -	LIGHT REFLECTOR	
192	3	1→0	VSCW0935	- - - - - - - -	LIGHT SHEET, AL	
228	1	1	VMDW0357	VMDW0374	BULGE CHIP	
250	2	1→0	LSQL0880	- - - - - - - -	LIGHT CAUTION LABEL	⚠
286	3	1→0	LSGT0037	- - - - - - - -	LIGHT KNOB	
355	3	1	LSYK0265	LSYK0357	LCD CASE A UNIT, ABS RESIN	

1.1.2. ELECTRICAL REPLACEMENT PARTS LIST

Ref. No.	Pcs/ Set	PV-L550 → PV-L580 Part No.	Part No.	Part Name	Remarks
E1	1	LSEP8024A1	LSEP8024L1	MAIN C.B.A.	RTL
Q1012	1→0	2SB1073 or 2SB1386T100Q or 2SB1386T100R	- - - - - - - - - -	CHIP	
Q1013	0→1	- - - - - - - - - -	2SB1585 or 2SB970	CHIP CHIP	
Q1101	1→0	2SA2014-TD	- - - - - - - - - -	CHIP	
Q1102	1→0	2SC4081T106R or 2SD1819A	- - - - - - - - - -	CHIP	
Q1103	1→0	2SA1576A106R or 2SB1218A	- - - - - - - - - -	CHIP	
Q1104	1→0	2SC4081T106R or 2SD1819A	- - - - - - - - - -	CHIP	
Q1105	1→0	2SA1576A106R or 2SB1218A	- - - - - - - - - -	CHIP	
Q1106	1→0	2SA1576A106R or 2SB1218A	- - - - - - - - - -	CHIP	
D1101	1→0	RD12S-T1B	- - - - - - - - - -	ZENER CHIP 12V	
D1102	1→0	MA111 or 1SS355TE-17	- - - - - - - - - -	CHIP	
R1065	1	ERJ3GEYJ222X	ERJ3GEYJ392X	MGF CHIP 1/16W 3.9K	
R1070	0→1	- - - - - - - - - -	ERJ3GEY0R00X	MGF CHIP 1/16W 0	
R1101	1→0	ERJ8GEYJR56V	- - - - - - - - - -	MGF CHIP 1/8W 0.56	
R1102	1→0	ERJ8GEYJR56V	- - - - - - - - - -	MGF CHIP 1/8W 0.56	
R1103	1→0	ERJ3GEYJ223X	- - - - - - - - - -	MGF CHIP 1/16W 22K	
R1104	1→0	ERJ3GEYJ680V	- - - - - - - - - -	MGF CHIP 1/16W 68	
R1105	1→0	ERJ3GEYJ222X	- - - - - - - - - -	MGF CHIP 1/16W 2.2K	
R1106	1→0	ERJ3GEYJ681X	- - - - - - - - - -	MGF CHIP 1/16W 680	
R1107	1→0	ERJ3GEYJ562X	- - - - - - - - - -	MGF CHIP 1/16W 5.6K	
R1108	1→0	ERJ3GEYJ473X	- - - - - - - - - -	MGF CHIP 1/16W 47K	
R1109	1→0	ERJ3GEYJ473X	- - - - - - - - - -	MGF CHIP 1/16W 47K	
R1110	1→0	ERJ3GEYJ223X	- - - - - - - - - -	MGF CHIP 1/16W 22K	
R1111	1→0	ERJ3GEYJ223X	- - - - - - - - - -	MGF CHIP 1/16W 22K	
R1112	1→0	ERJ3GEYJ223X	- - - - - - - - - -	MGF CHIP 1/16W 22K	
R1113	1→0	ERJ3GEYJ473X	- - - - - - - - - -	MGF CHIP 1/16W 47K	
R1114	1→0	ERJ3GEYJ473X	- - - - - - - - - -	MGF CHIP 1/16W 47K	
R3173	0→1	- - - - - - - - - -	ERJ3GEY0R00X	MGF CHIP 1/16W 0	
R3174	1→0	ERJ3GEY0R00X	- - - - - - - - - -	MGF CHIP 1/16W 0	
R6060	1→0	ERJ3GEYJ102X	- - - - - - - - - -	MGF CHIP 1/16W 1K	
C1053	1	ECUV1C104KBN	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1054	1→0	ECUV1C105ZFN	- - - - - - - - - -	C CHIP +80%-20% 16V 1	
C1101	1→0	ECUV0J225KBN	- - - - - - - - - -	C CHIP 6.3V 2.2	
C1102	1→0	ECUV1H102KBV	- - - - - - - - - -	C CHIP 50V 1000P	
C1103	1→0	ECUE1C104ZFV	- - - - - - - - - -	C CHIP +80%-20% 16V 0.1	
IC3501	1	AN3365SB-E1	AN3368SB-E1	IC, LINEAR HEAD AMP	
E41	1→0	VULS0001	- - - - - - - - - -	LAMP KIT	⚠

2. DIFFERENCES BETWEEN PV-L680 and PV-L650

2.1. COMPARISON CHART

2.1.1. MECHANICAL REPLACEMENT PARTS LIST

Ref. No.	Section No.	Pcs/ Set	PV-L650 → PV-L680 Part No.	Part No.	Part Name	Remarks
9	1	1	VEGS0438	VEGS0439	CYLINDER UNIT	
11	1	1	VEHW0032	VEHW0033	UPPER CYLINDER UNIT	
50	2	1	VXKS0897	VXKS0899	VCR MECHANISM CHASSIS ASS'Y	RTL
74	5	1→0	VSQW0038	- - - - - - - -	INFRARED REMOTE CONTROL UNIT	
85	5	1	LSPG0749	LSPG0838	PACKING CASE, PAPER	
88	5	1	LSQF0202	LSQF0224	FAN BAG	
89	3	2→1	VSBW0004	VSBW0004	BATTERY UNIT	
90	5	1→0	VGQ6893	- - - - - - - -	REMOTE CONTROL HOLDER	
115	2	1	LSKM0387	LSKM0349	SIDE CASE L, ABS RESIN	⚠
128	3	1	LSXM0007	LSXM0005	MICROPHONE UNIT	
185	2	1→0	VGLW0089	- - - - - - - -	INFRARED PANEL	
228	1	1	VMDW0357	VMDW0374	BULGE CHIP	
355	3	1	LSYK0266	LSYK0332	LCD CASE A UNIT, ABS RESIN	

2.1.2. ELECTRICAL REPLACEMENT PARTS LIST

Ref. No.	Pcs/ Set	PV-L650 → PV-L680 Part No.	Part No.	Part Name	Remarks
E1	1	LSEP8024C1	LSEP8024M1	MAIN C.B.A.	RTL
Q1012	1→0	2SB1073 or 2SB1386T100Q or 2SB1386T100R	- - - - - - - - - -	CHIP	
Q1013	0→1	- - - - - - - - - -	2SB1585 or 2SB970	CHIP CHIP	
Q6006	1→0	2SA1576A106R or 2SB1218A	- - - - - - - - - -	CHIP	
R1065	1	ERJ3GEYJ222X	ERJ3GEYJ392X	MGF CHIP 1/16W 3.9K	
R3173	0→1	- - - - - - - - - -	ERJ3GEY0R00X	MGF CHIP 1/16W 0	
R3174	1→0	ERJ3GEY0R00X	- - - - - - - - - -	MGF CHIP 1/16W 0	
R6012	1→0	ERJ3GEYJ103X	- - - - - - - - - -	MGF CHIP 1/16W 10K	
R6013	1→0	ERJ3GEYJ103X	- - - - - - - - - -	MGF CHIP 1/16W 10K	
R6100	1→0	ERJ3GEYJ472X	- - - - - - - - - -	MGF CHIP 1/16W 4.7K	
R6101	0→1	- - - - - - - - - -	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
C1053	1	ECUV1C104KBN	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1054	1→0	ECUV1C105ZFN	- - - - - - - - - -	C CHIP +80%-20% 16V 1	
IC3501	1	AN3365SB-E1	AN3368SB-E1	IC, LINEAR HEAD AMP	

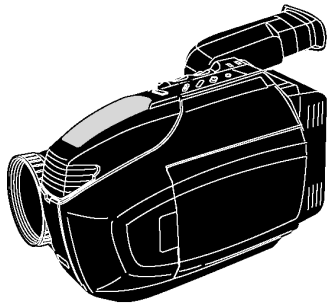
ORDER NO. MKE0001200C1
B15 (U.S.A.), B4 (CANADA, PUERTO RICO)

Service Manual

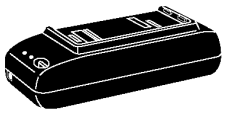
Compact VHS Camcorder

Palmcorder VHSC
PalmSight™

PV-D300
VM-D100
PV-L550
PV-L600
PV-L650
VM-L450



MODELS: PV-D300/ VM-L100
PV-L550/ PV-L600
PV-L650/ VM-L450



MODEL: PV-A17

ITEM	SPECIFICATION	1	2	3	4	5	6
Power Source	Compact VHS Camcorder: DC 6 V AC Adaptor: 110/120/220/240 V AC, 50/60 Hz Battery: Nickel-Cadmium Type DC 6 V	○	○	○	○	○	○
Power Consumption	Compact VHS Camcorder: 6 V DC 6.0 W (Max. 9.0 W) 6 V DC 8.5 W (Max. 11.5 W) AC Adaptor: 24 W 1.2 W (when not in use.)	○ – ○	○ – ○	– ○ ○	– ○ ○	– ○ ○	– ○ ○
Video Signal	EIA Standard (525 lines, 60 fields) NTSC color signal	○	○	○	○	○	○
Video Recording System	Head: 2 rotary heads plus flying erase head. Helical scanning system Signal-to-Noise Ratio: SP: more than 43 dB SLP: more than 41 dB Horizontal Resolution (Color/Monochrome) Recording: more than 300 lines Playback: more than 230 lines	○	○	○	○	○	○
Audio	Head: Normal Mono: 1 stationary head MIC Input Level (M3 type) - 70 dB Frequency Response: Normal Mono: SP: 100 Hz - 8 kHz SLP: 100 Hz - 5 kHz Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB LP: more than 40 dB	○	○	○	○	○	○
Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/s), SLP: 7/16 i.p.s (11.12 mm/s) Record/Playback Time: SP: Max. 30 min, SLP: Max. 90 min, with TC-30 Tape FF Time: Less than 7 min. (TC-30 Tape) REW Time: Less than 4 min. (TC-30 Tape)	○	○	○	○	○	○
Tape Format	Tape width 12.7 mm (0.5 inch) high density tape	○	○	○	○	○	○

ITEM	SPECIFICATION	1	2	3	4	5	6
Pick-Up System	Sequential color difference field reverse system	○	○	○	○	○	○
Pick-Up Device	One integral color filter Charge Coupled Device (CCD)	○	○	○	○	○	○
Lens	18 : 1 zoom lens, F1: 1.6 with auto iris control Focal length: 3.9 mm - 70.2 mm 4 speed power zoom function Lens filter diameter: 49 mm	○	○	○	○	○	○
Viewfinder	11.2 mm (0.44 inch) Liquid Crystal color Electronic Viewfinder 10.2 mm (0.4 inch) Electronic Viewfinder	○ –	–	–	–	–	–
LCD Monitor	63.5 mm (2.5 inch) Liquid Crystal Display 76.2 mm (3.0 inch) Liquid Crystal Display 101.6 mm (4.0 inch) Liquid Crystal Display	–	–	○	–	–	–
Minimum Illumination Required	0.8 lx (F1: 1.6) 0.08 footcandles 7 lx (F1: 1.6) 0.7 footcandles (EIA Standard)	○	○	○	○	○	○
Operating Condition	0 °C ~ 40 °C (32 °F ~ 104 °F) (Temperature) 10 % ~ 75 % (Humidity)	○	○	○	○	○	○
Weight	0.87 kg (1.92 lbs.) 1.0 kg (2.2 lbs.) 1.02 kg (2.25 lbs.) 1.05 kg (2.3 lbs.)	○	○	–	–	–	–
Dimension	101 mm x 118 mm x 180 mm (4 inch x 4-5/8 inch x 7-1/8 inch) (W x H x D) 108 mm x 118 mm x 180 mm (4-1/4 inch x 4-5/8 inch x 7-1/8 inch) (W x H x D)	○	○	–	–	–	–

1. PV-D300
2. VM-D100
3. PV-L550
4. PV-L600
5. PV-L650
6. VM-L450

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

Regarding the Service Manual of the AC Adaptor for model PV-A17, please refer to the Service Manual / Order No. MKW9512M302.

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1 SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**

   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 MΩ and 5.2 MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

LEAKAGE CURRENT HOT CHECK

(See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 kΩ, 10 W resistor, in parallel with a 0.15 µF capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with 1 MΩ/V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 mA. In case a measurement is outside of the /limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

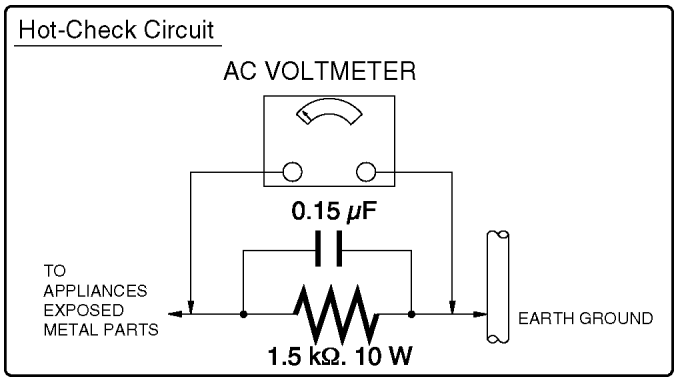


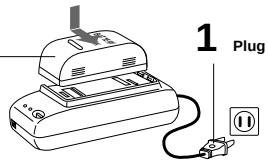
Figure. 1

4 OPERATION GUIDE

Quick Operation Guide

Charging the Battery Pack

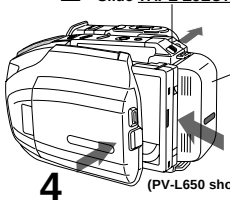
Charge Battery Pack fully before operation.



2 **Insert Battery.** CHARGE Lamp lights and then goes out when charging is done.

1 **Plug in AC Adaptor.**

Insert Cassette



2 **Slide TAPE EJECT** to open door.

1 **Attach fully charged Battery.**

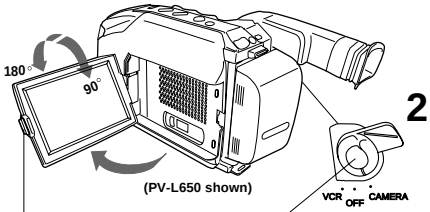
3 **Insert cassette.**

4 **Press here** to close door.

(PV-L650 shown)

Camera Recording

When the LCD monitor is open, the EVF automatically turns OFF.



(PV-L650 shown)

2 **Set POWER to CAMERA.**

1 **Press LCD-OPEN** to unlock the LCD monitor. **Swing it fully open and adjust the angle.**

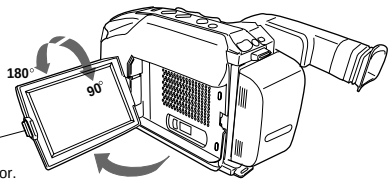
3 **Press RECORD/PAUSE** to start recording.
Press RECORD/PAUSE again to pause recording.

(PV-L550/PV-L600/PV-L650/VM-L450)

Playback using the LCD Monitor

Before you begin...
- **Charge Battery Pack fully before operation.**

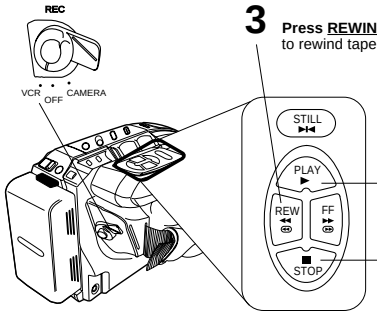
When the LCD monitor is open, the EVF automatically turns OFF.



(PV-L650 shown)

1 **Press LCD-OPEN** to unlock the LCD monitor. **Swing it fully open and adjust the angle.**

2 **Set POWER to VCR.**



3 **Press REWIND/SEARCH** to rewind tape.

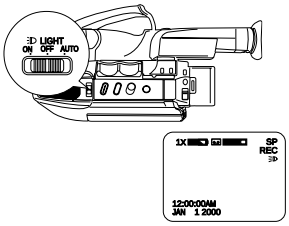
4 **Press PLAY** to start playback.

5 **Press STOP** to stop playback.

Built-in Auto Light

Using the Light

For recording in dim lighting.



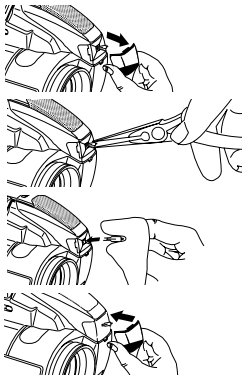
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Set LIGHT to AUTO.
Light turns on/off automatically according to lighting conditions.
Or, set LIGHT to ON/OFF manually.

appears in EVF or LCD Monitor when Light is on.

Caution:
Light becomes hot. Never cover Light while on.

Replacing the Bulb



Before you begin...
- **Order Part No. VULS0001 (VLLW0015 and cushions) for replacement bulb unit.**
- **Set POWER to OFF.**

1 **Press in on both sides of lens cover and pull straight out and off.**

2 **Using Tweezers or needle-nose pliers, carefully remove bulb.**
- Take unit to service center if you need assistance.

3 **Replace bulb using a clean cloth or tissue.**

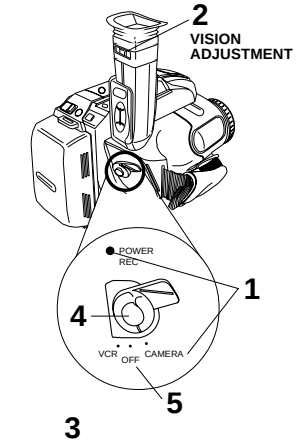
4 **Replace lens cover.**

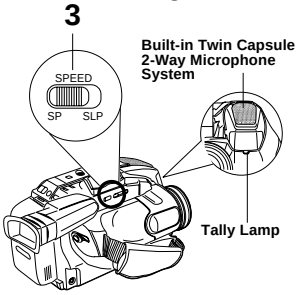
DANGER:
Use only replacement bulb (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new bulb with cloth or tissue as skin oils will decrease bulb life.
Remove lens cover and allow bulb to cool before replacing to avoid possible burn hazard.

Note:
- Using Light reduces battery operating time.
- Provide proper ventilation when using Light extensively in hot environment.
- Using Light when the Camcorder is powered by a car battery may shorten bulb life.
- Set Light to OFF when not in use.
- Handle bulb gently. Excessive force may cause bulb to crack.

Camera Recording

Simple Recording

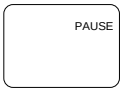




Before you begin...
- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to CAMERA.**
Lens Cover opens.
Power lamp lights.
- Be sure POWER is fully turned to CAMERA position.

EVF or LCD Monitor



Record/Pause mode.

2 **Look into EVF and adjust VISION ADJUSTMENT to your eyesight.**

3 **Slide TAPE SPEED** to SP or SLP.

4 **Press RECORD/PAUSE** to start or pause recording.
Tally lamp lights if set to ON.

5 **Set POWER to OFF** when finished.

- **To remove cassette,** slide TAPE EJECT in Record/Pause mode.

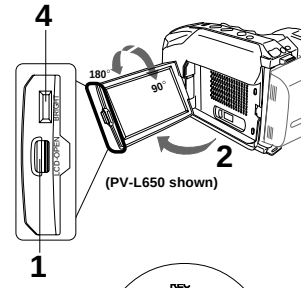
Note:
- When Camcorder is aimed at excessively bright objects, or bright lights, a vertical bar may appear in the picture. This is normal for the CCD pick-up. Try to avoid this when possible.

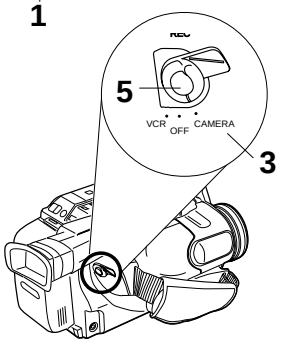
Camera Recording

(PV-L550/PV-L600/PV-L650/VM-L450)

Using the LCD Monitor

View recording scene on the LCD (Liquid Crystal Display) monitor.





Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Press LCD-OPEN** to unlock LCD monitor.

2 **Swing LCD monitor fully open and adjust viewing angle**.

Caution:
Rotating partially open LCD monitor may block cassette door and damage Camcorder body.

3 **Set POWER to CAMERA.**
- LCD monitor turns on/off by the POWER switch.
- EVF shuts off when LCD monitor is opened and turns back on when LCD is closed.
- Both EVF and LCD monitor turn on when LCD is at 180° (see above left).
  This allows both you and the subject to view the recording.

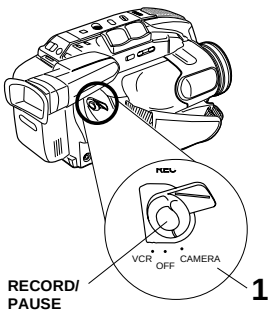
4 **Turn BRIGHT control** to adjust LCD monitor brightness level.

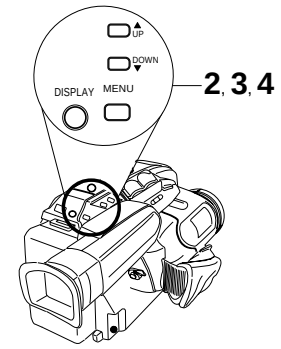
5 **Press RECORD/PAUSE** to start recording.

Note:
- Using LCD monitor reduces battery operation time.
- Return LCD monitor to locked position when not in use.

Stand-by Quick Release

If left in RECORD/PAUSE mode for 5 minutes, Camcorder switches to Stand-by mode to conserve battery. When set to ON, Stand-by Quick Release lets you resume recording by pressing RECORD/PAUSE two times. New camcorders will default to OFF.



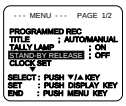


Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to CAMERA.**

2 **Press MENU for MENU mode. Press UP ▲ or DOWN ▼** to select **STAND-BY RELEASE**.



3 **Press DISPLAY** to select ON/OFF.

ON: From Stand-by mode, press RECORD/PAUSE two times to resume recording.

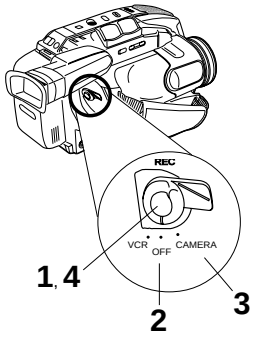
OFF: From Stand-by mode, set POWER to OFF, then to CAMERA. Press RECORD/PAUSE to record.

4 **Press MENU** to exit.

Camera Recording (continued)

Easy Edit Stand-by

For a smooth transition between scenes if recording is stopped, and then started within 24 hours.



Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Press RECORD/PAUSE to stop recording.**

2 **Set POWER to OFF** and leave cassette in Camcorder.

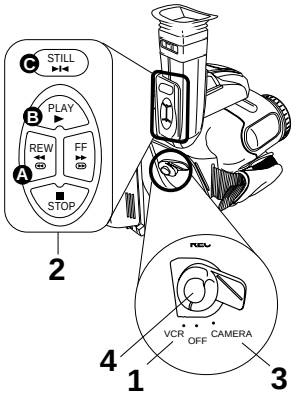
3 To resume recording, **set POWER to CAMERA.**

4 **Press RECORD/PAUSE** to resume recording.

Note:
- Use Manual Easy Edit (below) if more than 24 hours before recording is resumed.

Manual Easy Editing

For proper continuity when taping from Stop mode or after attaching a new Battery.



Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to VCR.**

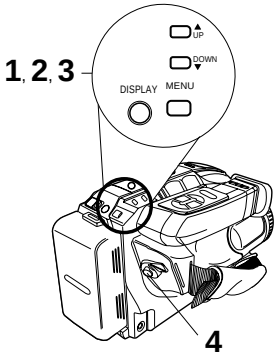
2 **A Press REWIND/SEARCH** to rewind a few seconds of tape.
B Press PLAY to review recording.
C Press STILL where you want to continue recording.

3 **Set POWER to CAMERA.**

4 **Press RECORD/PAUSE** to resume recording.

Programmed Recording

Set a recording start and stop time. Or, set a 5 or 10 second interval recording to be done each minute.



10MIN. → 20MIN. → 30MIN. → TO TAPE END
INTERVAL *2 10 SEC/MIN. ← INTERVAL *1 5 SEC/MIN.

***1 Interval 5 SEC/MIN:**
Record 5 seconds each minute.

***2 Interval 10 SEC/MIN:**
Record 10 seconds each minute.

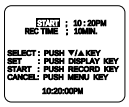
Note:
- Start time may not be set over 24 hours from current time.
- Camcorder shuts off at tape end, or 12 hours after Interval Recording starts.
- To cancel, set POWER to OFF.

Before you begin...

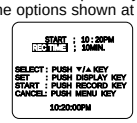
Connect Camcorder to power source.
Use AC Adaptor for longer recordings.
Insert cassette with record tab.
Set POWER to CAMERA.

1 **Press MENU for MENU mode. Press UP ▲ or DOWN ▼ to select PROGRAMMED REC.**

2 **Press DISPLAY.** (Current time is displayed.)
Each additional press of DISPLAY increases start time by 30 minutes.

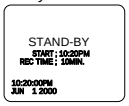


3 **Press DOWN ▼ to select REC TIME. Press DISPLAY** repeatedly to select one of the options shown at the left.



To cancel the setup, **press MENU twice**.

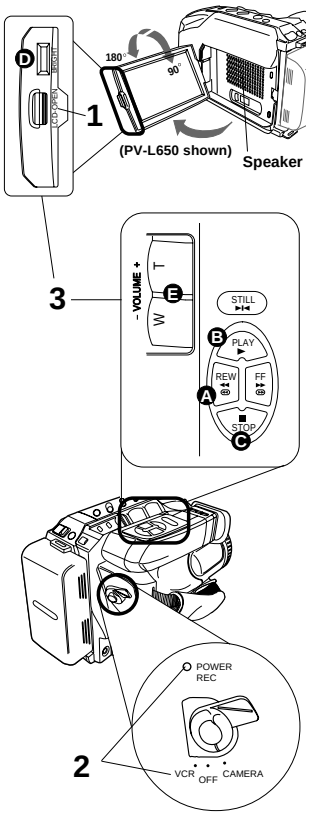
4 **Press RECORD/PAUSE** to place Camcorder in stand-by mode.



Recording will be done as scheduled.

Playing Back Recordings

Playback on EVF or LCD Monitor

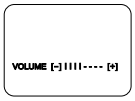


Before you begin...
- **Connect Camcorder to power source.**
- **Insert recorded tape.**

1 **Press LCD-OPEN** and swing LCD monitor fully open.
- If you want to playback on EVF, close and lock LCD monitor.

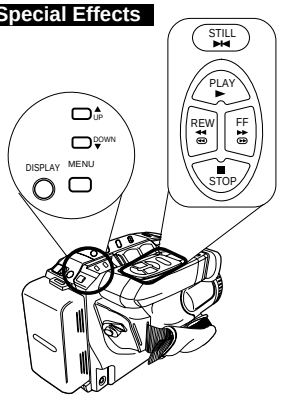
2 **Set POWER to VCR.**
Power lamp lights.
- If tape has no record tab, auto playback begins.
- EVF or LCD monitor turns on/off by the POWER switch.
- EVF shuts off when LCD monitor is opened and turns back on when LCD is closed.

3 **Playback function buttons.**
- Ⓐ **REW**(ind) : rewind tape.
- Ⓑ **PLAY** : play tape.
- Ⓒ **STOP** : stop tape.
- Ⓓ **BRIGHT** : adjust LCD monitor brightness.
- Ⓔ **VOLUME** : Adjust volume of speaker.
  Press "T" : Volume up(+).
  Press "W" : Volume down(-).



Note:
- Using LCD monitor reduces battery operating time.
- Return LCD monitor to locked position when not in use.

Special Effects



Before you begin...
- **Connect Palmcorder to power source.**
- **Insert recorded tape.**
- **Set POWER to VCR.**

Quick Visual Search

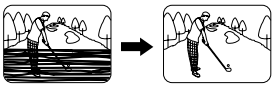
Search Speed
SP (Standard Play) : 3 times normal.
SLP (Super Long Play) : 9 times normal.

During playback, press:
FF : fast forward search
REW : rewind search
Press again or press PLAY for normal play.

Still Picture
Press STILL to freeze picture.
Press again for normal play.
This feature is works best in SLP mode.

- During search, horizontal noise bars will appear. Audio is muted.
- To protect video heads and tape, operating modes will revert as follows after 5 minutes:
  Still ⟶ Stand-by
  Stand-by ⟶ Power off (when Battery Pack is used).
- Tape auto-rewinds if played or fast forwarded to end.

Tracking Control



Auto Tracking
Continuously analyzes each recording for optimum picture quality.

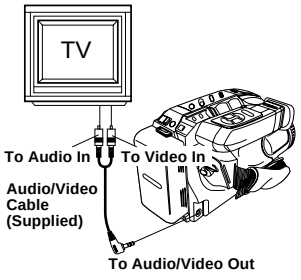
Manual Tracking
Some recordings require manual adjustment to reduce noise.
Press UP ▲ or DOWN ▼ until Playback picture clears up.
Press DISPLAY to return to Auto Tracking.

Playing Back Recordings (continued)

TV Playback or Viewing

Connect Camcorder to a TV to view playback or recordings in progress.

TV with AUDIO/VIDEO IN Jacks.



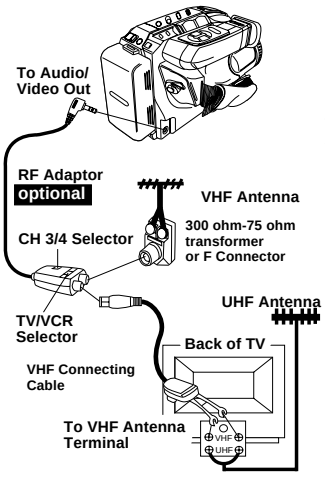
Before you begin...
- **Connect Camcorder to power source.**
- **Make all TV-Camcorder connections.**

1 **Set POWER to:**
VCR ⟶ view playback.
CAMERA ⟶ view picture as it is recorded.

2 **Turn TV ON and set to LINE INPUT.**
See TV owner's manual.

3 **Begin playback or recording.**

TV without AUDIO/VIDEO IN Jacks.



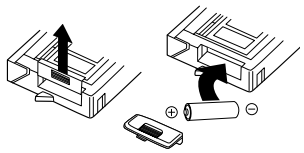
If TV has no VIDEO/AUDIO IN jacks, connect PV-RF16 RF Adaptor (optional). Tune TV to CH 3 or 4 to match RF Adaptor CH 3/4 Selector. Set Adaptor's TV/VCR Selector to VCR for playback.

To watch TV only,
a Set Camcorder POWER to OFF.
b Set RF Adaptor TV/VCR Selector to TV.
c Turn TV ON and select channel.

CATV System Installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical Code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

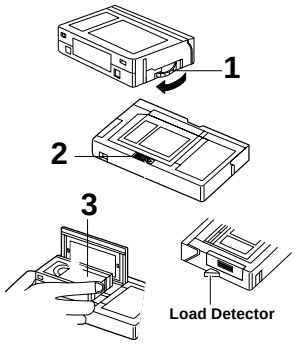
Playing Back Recordings in a VCR

Load Battery in PlayPak



Remove Battery lid and insert AA battery.
- Do not reverse polarity.
- Replace battery when tape loading/ unloading takes longer than usual.

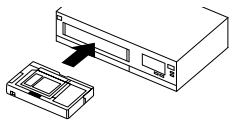
Insert VHS C Cassette in PlayPak



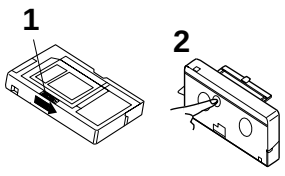
1 **Turn VHS C cassette Tape Wheel in direction of arrow** to take up any slack.

2 **Slide RELEASE** to open cassette lid.

3 **Insert the VHS C cassette** with the window up and on the left, **then snap lid shut.**
- Do not obstruct cassette reel while loading.
- Allow PlayPak Load Detector to fully retract before using in VHS VCR.



Remove VHS C Cassette

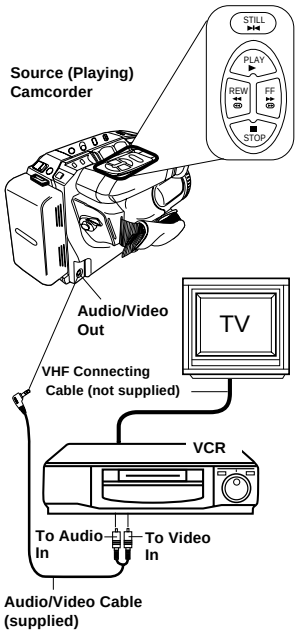


1 **Slide RELEASE** and wait for lid to open.

2 **Push cassette out through** hole in bottom of PlayPak with your finger.

Copying your Tapes (dubbing)

Connections



Before you begin...
- **Make Camcorder-VCR connections (see left).**
- **Turn both units on.**
- **Set VCR input signal to LINE. Please see VCR owner's manual.**
- **Set Camcorder POWER to VCR.**

1 **Insert a pre-recorded tape** into Camcorder and a blank tape with record tab into VCR.

2 **Press PLAY** on Camcorder, then **press STILL** at starting point.

3 **Press REC, then STILL/PAUSE on VCR.**

4 **Press STILL** on Camcorder and **STILL/PAUSE** on VCR again to start copying.

5 **Press STOP on both units to stop copying.**

Note:
- Camcorder will only playback tapes recorded in SP or SLP mode.
- Dubbing may reduce picture quality.

Monitor with your TV

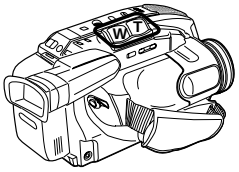
- Turn TV on and tune to VCR channel (CH3 or CH4).
- Set TV/VCR Selector on VCR to VCR.

CAUTION:
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

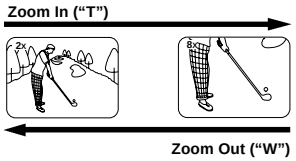
Power Zoom / Backlight

Four-Speed Power Zoom

Zoom in (close up) and out (wide angle) in one of four speeds ranging from slow (16 seconds) to fast (2 seconds).



Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

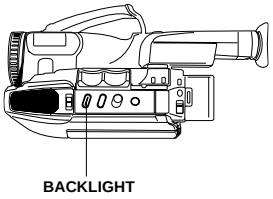


Zoom slowly:
Lightly press "T" (telephoto) or "W" (wide angle) POWER ZOOM button.

Zoom quickly:
Apply more pressure to the button.

Backlight

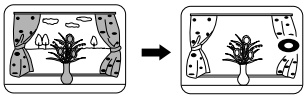
Use when subject is darker than surroundings, in shadowed area, or in front of the light source.



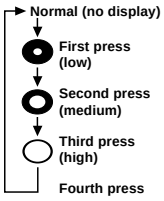
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Press BACKLIGHT while recording to select the level of backlight compensation.

In normal lighting, **press BACKLIGHT** repeatedly until no indicator displayed.

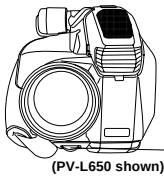


EVF or LCD Monitor



Focus

Auto Focus



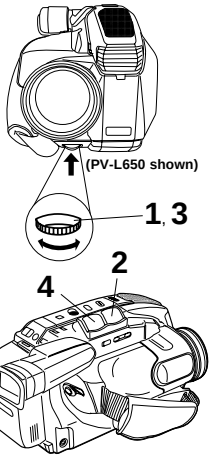
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Camcorder automatically focuses on subject even during zooming.

Auto Focus is on when "MF" is not displayed in EVF or LCD monitor. **Push MANUAL FOCUS** to remove "MF" in EVF or LCD monitor if necessary.

Manual Focus

Use Manual Focus (MF) when :
- recording through glass.
- lighting is poor.
- subject is far away with objects in foreground.
- subject has distinct horizontal lines.
- subject is not centered in EVF or LCD monitor.
- subject has shiny surface.
- subject is slanted.
- subject is bright and flat, like a white wall.
- subject has fast motion, like a golf swing.



1 **Push MANUAL FOCUS** so "MF" (Manual Focus) appears in EVF or LCD monitor.

EVF or LCD Monitor

2 **Hold down "T" (telephoto) on POWER ZOOM** to maximum zoom in.

3 **Turn MANUAL FOCUS** until subject is in focus.
- Back away from subject if necessary.

4 **Hold down "W" (wide angle) on POWER ZOOM** as desired.

- **Refocus as needed** when aiming at new scenes.

Macro Focus (close-ups)

Auto Focus functions up to 12.7 mm (1/2 inch) from subject.

Hold down "W" on POWER ZOOM to maximum wide angle.
Bring Camcorder up close to the subject.

High Speed Shutter

Improves Still or Slow Motion playback picture of high speed subjects (e.g. a tennis stroke), when viewed on Camcorder or 3 or 4 head VCR.

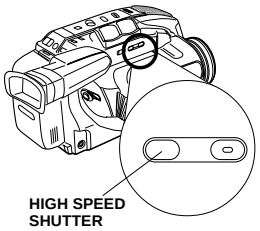
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Insert cassette with record tab.**

Auto Shutter

In AUTO mode (no indication in EVF or LCD Monitor), shutter speed is auto-adjusted from 1/60 to 1/350 according to subject brightness.
- AUTO mode is selected each time POWER is set to CAMERA.

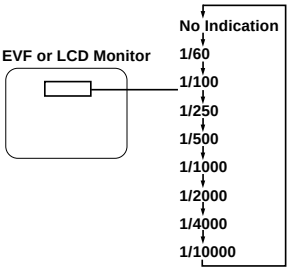
Manual Selection

The faster the shutter speed, the more light is needed for proper picture and color quality. High Speed Shutter indication flashes if light is inadequate. Provide additional light.



1 **Press HIGH SPEED SHUTTER** while recording.

2 **Press repeatedly** to change shutter speed.
(See below, left.)

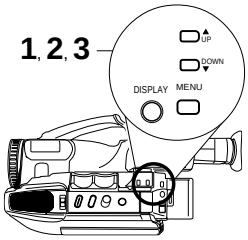


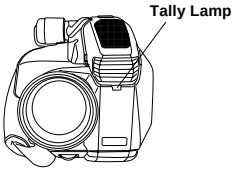
Note:
- Provide additional halogen or tungsten light for use indoors or in poor light. Fluorescent light degrades picture.
- Auto Focus may not function properly if high speed shutter is used in inadequate light.
- Setting reverts to AUTO each time POWER is set to CAMERA.

Tally Lamp

Tally Lamp

The tally lamp can be set to come on or stay off during recording.
New camcorder's default setting is ON.

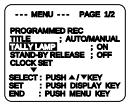




(PV-L650 shown)

Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Insert cassette with record tab.**

1 **Press MENU for MENU mode.**
Press UP ▲ or DOWN ▼ to select **TALLY LAMP**.

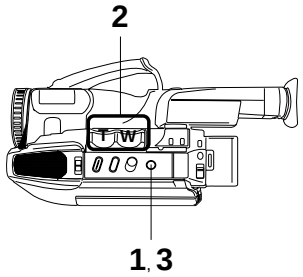


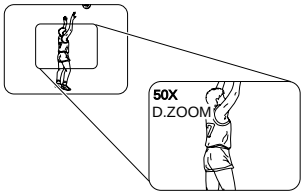
2 **Press DISPLAY** to select:
ON → lamp lights during recording.
OFF → lamp stays off.

3 **Press MENU** to exit.

Digital Zoom

Power Zoom magnification is digitally increased.





Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

1 **Press DIGITAL ZOOM.**
D.ZOOM mode (150X maximum).

Higher digital magnification levels may cause picture distortion.

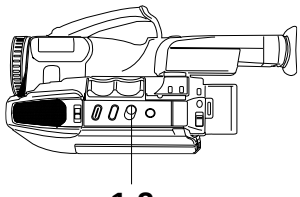
2 **Hold down "T" on POWER ZOOM.**
Digital Zoom starts when normal zoom reaches maximum (18X).
- Zoom level appears in EVF or LCD monitor.
- POWER ZOOM switch controls digital zoom level.
- Normal zoom resumes when level falls to 18X.

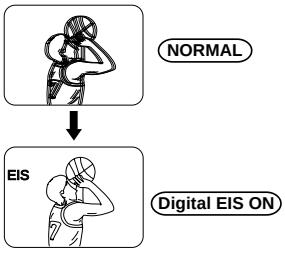
3 **Press DIGITAL ZOOM** to turn off Digital Zoom so no indication appears.

Digital E.I.S.

Digital Electronic Image Stabilization (E.I.S.)

Helps stabilize picture when recording in unstable situations.





Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

1 **Press EIS** to display "EIS" in the EVF or LCD monitor.
- Image becomes slightly enlarged and shutter speed auto-adjusts from 1/80 to 1/350 according to brightness.
- Use High Speed Shutter if needed. Shutter speed setting remains after EIS is canceled.

2 **Press EIS again** to cancel when not in use.

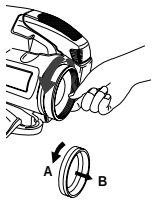
E.I.S. may not function during...
- extreme Camcorder movement.
- recording of subject with distinct horizontal or vertical stripes.
- low light situations (EIS indicator flashes).
- intense fluorescent lighting situations.
- recording of very fast motion.

Operation Notes

Attaching Optional Filters and Lenses

When you remove the Lens Hood, pinch the Lens Hood and turn it counterclockwise as illustrated at right.

Then attach an optional filter or lens.
- Be careful not to touch the lens itself.
- Replace the Lens Hood after removing the accessory.



Lens Hood Area Operation Caution

With a Wide or Telephoto conversion lens (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

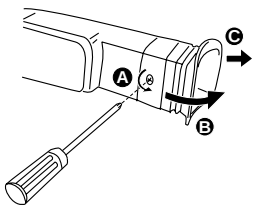
When attaching the lens hood, a Wide or Telephoto conversion lens (optional), etc. after a filter (optional) has been attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

With two filters (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

Cleaning EVF (Electronic Viewfinder)

(VM-D100/PV-L550/PV-L600/PV-L650/VM-L450)

To Remove



1 Ⓐ Remove the screw with a Phillips screwdriver.
Turn counterclockwise.
Ⓑ Turn the EVF Eyepiece.
Ⓒ Pull the EVF Eyepiece.

2 Remove any lint or dust particles with a soft clean cloth being careful not to scratch the glass surfaces.

3 Replace the EVF Eyepiece and the screw.

5 SERVICE NOTES (PLEASE READ)

5.1. SERVICE NOTES

5.1.1. EXTENSION CABLES FOR SERVICE

Using the following Extension Cables, place the unit as shown for check and service.

No.	PART NUMBER	PART NAME	CONNECTION
1	VUVS0007	12Pin Extension Cable	FP8 on Main C.B.A. ~ CCD F.P.C. on Lens Unit
2	LSUA0020	20Pin Extension Cable	FP9 on Main C.B.A. ~ Lens F.P.C. on Lens Unit
3	VUVS0015	28Pin Extension Cable	FP1 on Main C.B.A. ~ A/C Head/Capstan F.P.C. on VCR Mechanism Chassis Ass'y
4	VUVS0012	22Pin Extension Cable	FP3 on Main C.B.A. ~ Top Operation F.P.C.

NOTE:

1. **When using the cassette tape:**
   a. Be sure to remove a cassette lid cover of cassette tape.
   b. Be sure to install the Lock Screw to Cassette Up Unit. **After servicing, be sure to remove the Lock Screw.**
      Refer to "How to Hold the Cassette Up Unit in the Down Position without Cassette Cover Installed."
   c. Select the H. Safety Defeat in SERVICE MODE. Refer to "SERVICE MODE SPECIFICATION."
      Or, connect a silicon diode on component side of the Main C.B.A. as shown to defeat safety function.
      (Since Takeup Reel sensor, located on Main C.B.A. does not work when opening Main C.B.A., the mechanism does not work (Reel lock). Therefore, make sure to defeat Safety function.)
2. Use extreme care so as not to apply any excessive pressure to the Cylinder/Head Amp F.P.C. After servicing, be sure to place it correctly. Refer to "Cylinder Ass'y" in "MECHANISM SECTION."
3. The LCD open/close SW. is for changing between LCD Display or EVF Display. When turning on LCD Display, place some paper or tape, etc. on LCD open/close SW. so that this SW. stays ON.
4. Use a grounded ESD wrist strap while disassembling the Lens portion.
5. Use extreme care when unplugging or plugging in connectors.

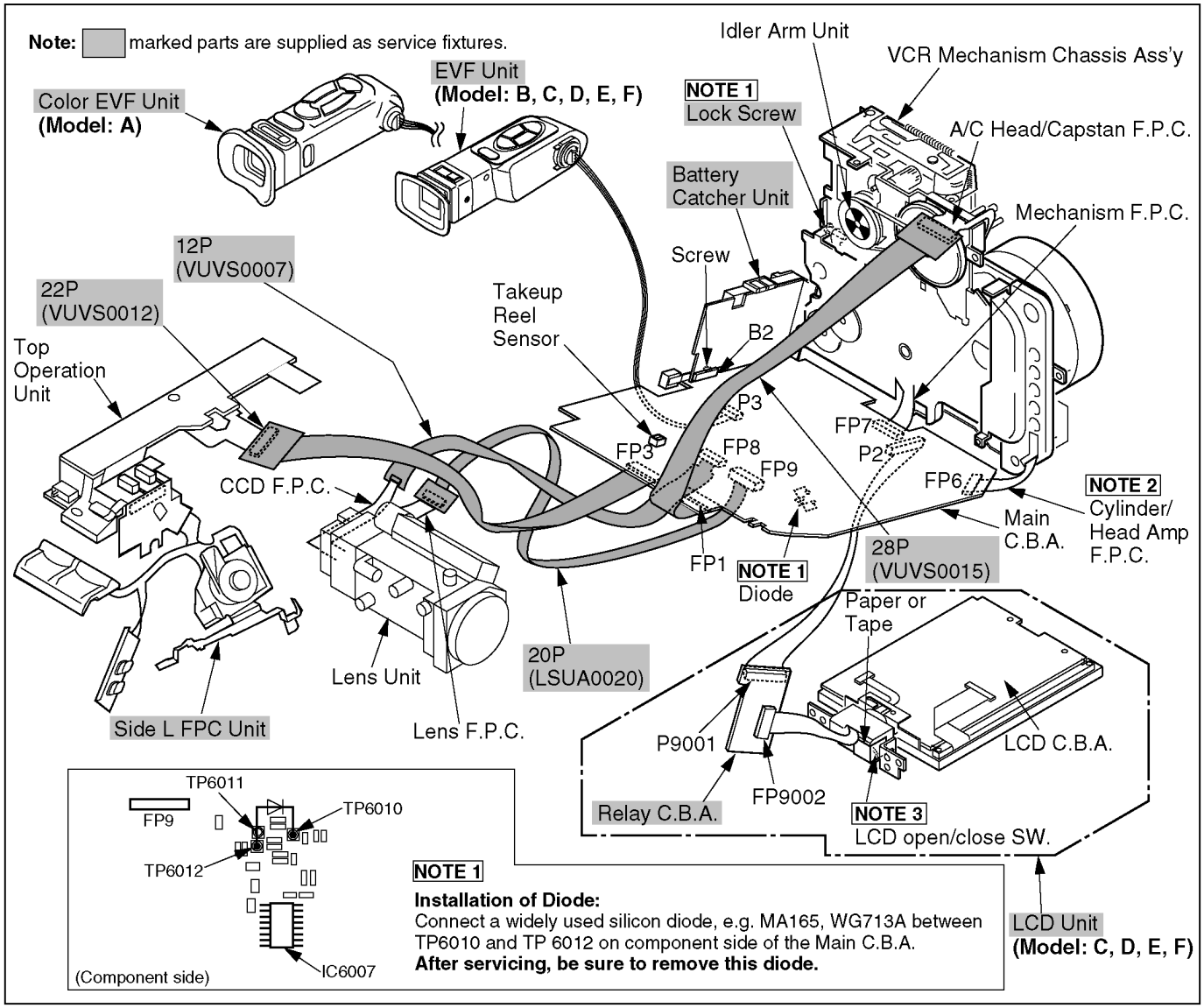

Note: marked parts are supplied as service fixtures.
Color EVF Unit
(Model: A)
EVF Unit
(Model: B, C, D, E, F)
Idler Arm Unit
VCR Mechanism Chassis Ass'y
NOTE 1
Lock Screw
A/C Head/Capstan F.P.C.
Battery
Catcher Unit
Mechanism F.P.C.
Screw
12P
(VUVS0007)
22P
(VUVS0012)
Takeup
Reel
Sensor
B2
Top
Operation
Unit
P3
FP7
FP3
FP8
P2
FP9
FP6
CCD F.P.C.
NOTE 2
Cylinder/
Head Amp
F.P.C.
Main
C.B.A.
28P
(VUVS0015)
FP1
NOTE 1
Diode
Paper or
Tape
20P
(LSUA0020)
Lens Unit
Side L FPC Unit
Lens F.P.C.
P9001
LCD C.B.A.
Relay C.B.A.
FP9002
NOTE 3
LCD open/close SW.
LCD Unit
(Model: C, D, E, F)
TP6011
FP9
TP6010
TP6012
IC6007
(Component side)
NOTE 1
Installation of Diode:
Connect a widely used silicon diode, e.g. MA165, WG713A between TP6010 and TP 6012 on component side of the Main C.B.A.
After servicing, be sure to remove this diode.

Fig. 1-1

5.1.2. INTERCONNECTION OF EXTENSION CABLES

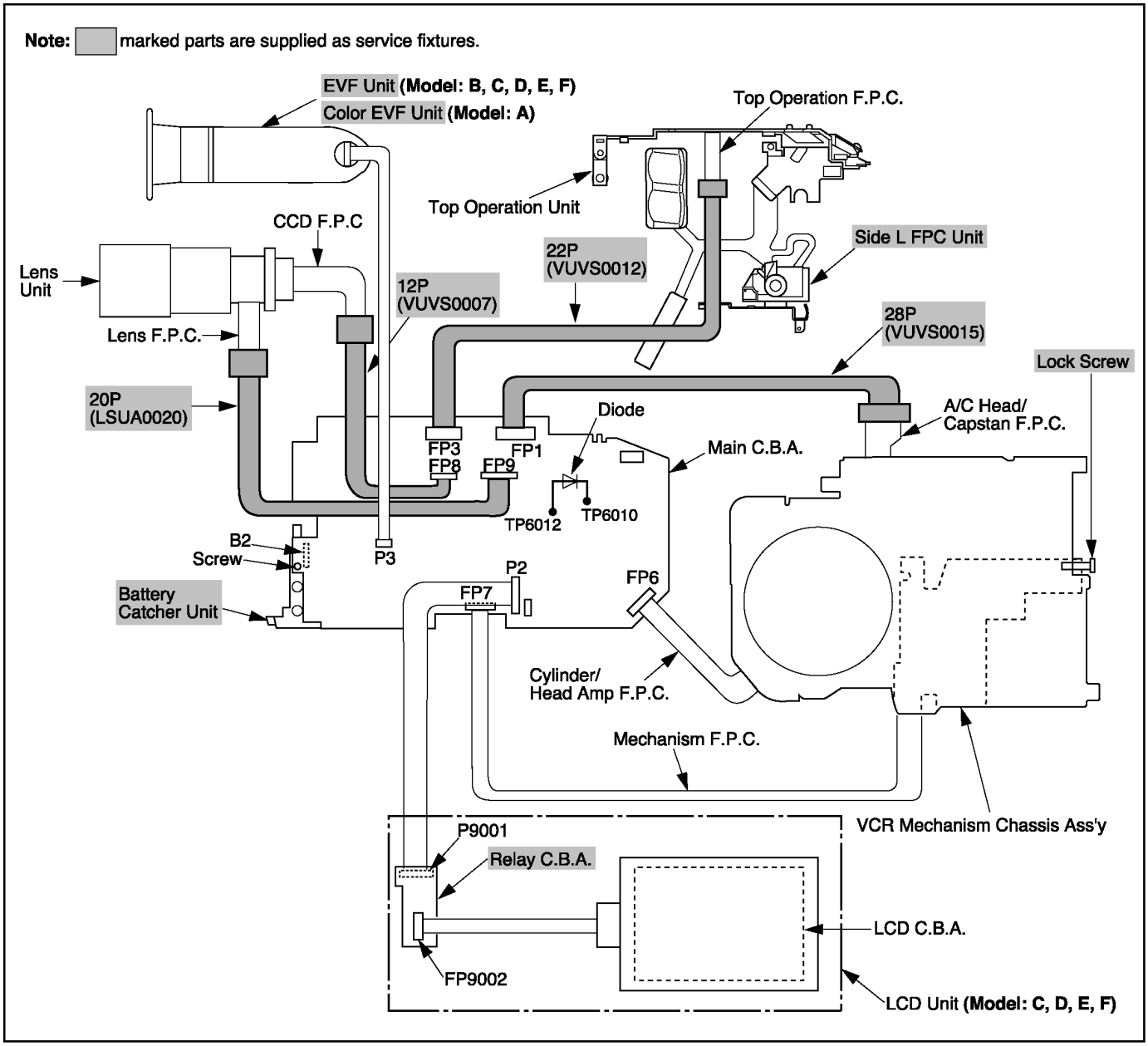


Fig. 1-2

5.1.3. HOW TO HOLD THE CASSETTE UPUNIT IN THE DOWN POSITION WITHOUT CASSETTE COVER INSTALLED

The Cassette Up Unit will be in the up position without the Cassette Cover installed.

To hold the Cassette Up Unit in the down position without it, a Lock Screw is needed.

Lock Screw (VHDW0125)

A Lock Screw is supplied as a service fixture.

5.1.3.1. How to install the Lock Screw:

1. If the Lock Lever, shown in gray, is set to Position "A" (No hole), change Position "A" (No hole) to Position "B" (Hole) as shown in Fig. 2-2 by pushing Portion (a) as shown in Fig. 2-1.

   Note:

   If the mechanism is in EJECT position, the Lock Lever cannot be changed to Position "B" by pushing Portion (a). In this case, apply the power to set the mechanism to STOP position.

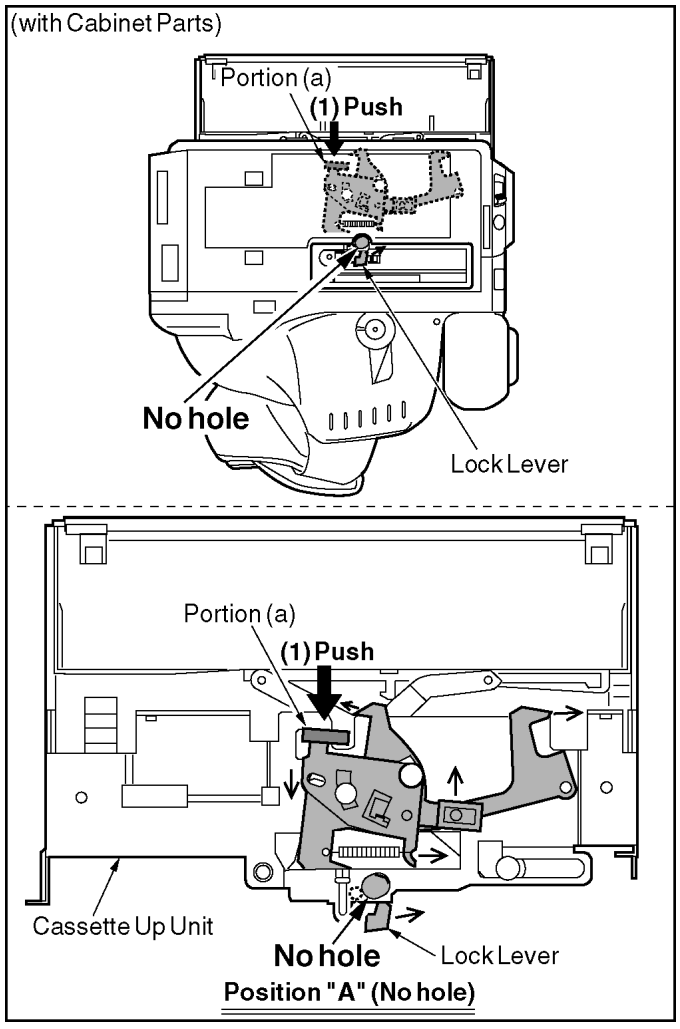


Fig. 2-1

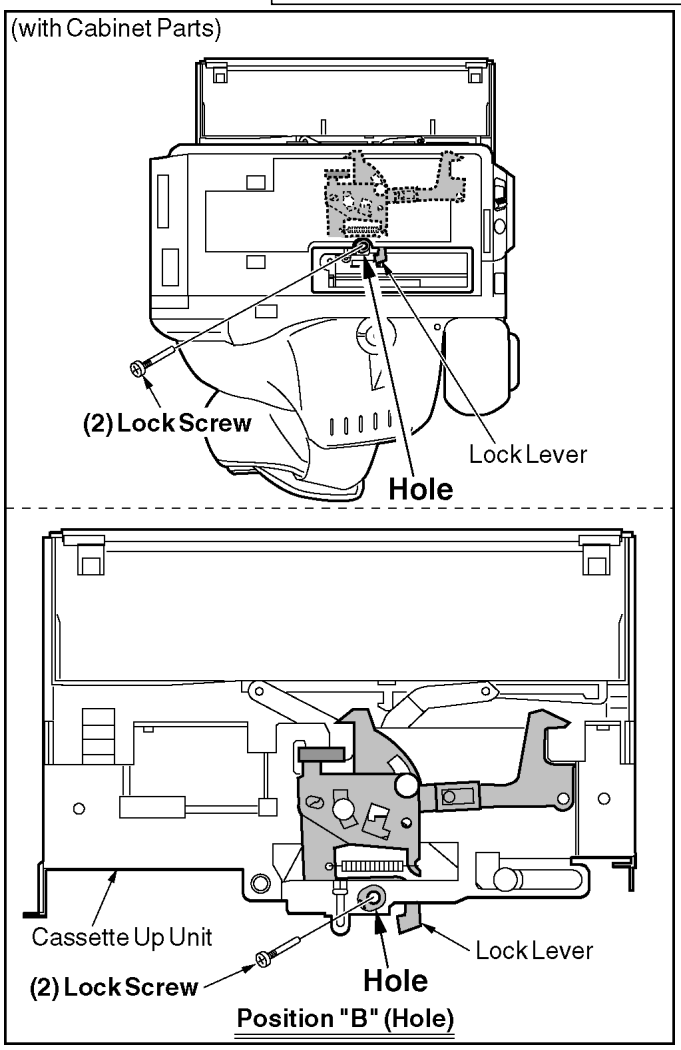


Fig. 2-2

2. Install the Lock Screw in the Hole (Threaded Hole for Lock Screw access) in Position "B".
3. Hold down the Cassette Up Unit.
4. Confirm that Cassette Up Unit will be held in the down Position.

5.1.3.2. Lock Screw is required when:

1. performing "Tape Interchangeability Adjustment."
2. servicing **with cassette tape** in Service Position. The procedure below is required when the unit is in safety defeat mode.
   a. Confirm that the Lock Lever, shown in gray, is set to Position "A" as shown in Fig. 2-1, and that the mechanism is in the STOP position.
   b. Insert the cassette tape.
   c. Push Portion (a) as shown in Fig. 2-1 while keeping the Cassette Up Unit in the down position so the mechanism starts loading. (Cassette Down Switch is ON.)

CAUTION:

1. After servicing, be sure to remove the Lock Screw.
2. The replacement Cassette Up Unit and VCR Mechanism Chassis Ass'y are supplied with a Lock Screw installed. Make sure to remove this Lock Screw when replacing them.

5.1.4. SERVICE MODE SPECIFICATION (SELF-DIAGNOSTIC SYSTEM)

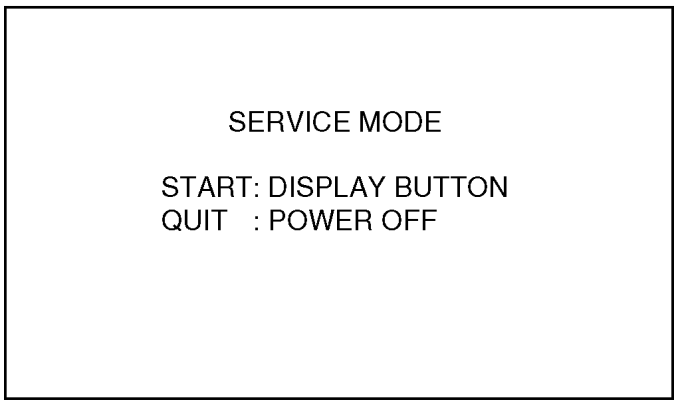
Operation:

1. Start-up : Press and hold all of the **Display**, **REC**, and **Stop** buttons over 2 seconds, the unit goes into the self-diagnostic mode and main menu appears.
2. Mode Selection : Press display button to change and select self-diagnose mode.
3. Close : Turn off the Power Switch.

Display:

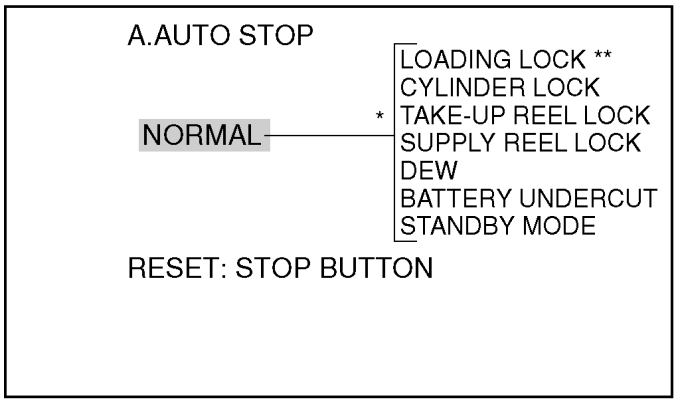
1. Following descriptions can be displayed on EVF and TV monitor at the same time.

1. Main Menu



Press and hold all of the Display, REC and Stop buttons over 2 seconds. The Main Menu appears on E.V.F. and TV monitor.

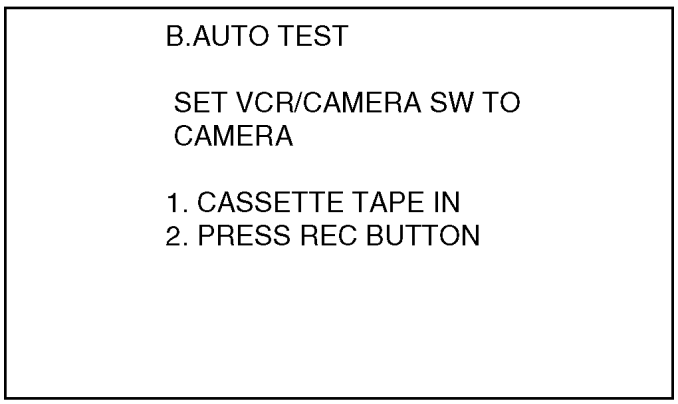
2. Auto Stop



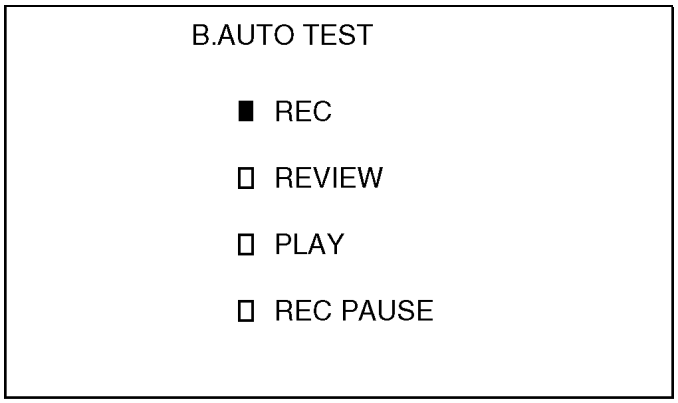
When the unit suddenly shuts off, It is possible to see the cause description in this menu. Even if the AC adaptor or battery is disconnected, the most recent failure will be memorized. Pressing the Stop button at this time will reset the memory.

* Cause descriptions can be displayed until power shuts off.
** LOADING LOCK --- EJECT
STOP
STBY
REC / PB
(When it is possible to detect the lock position, loading lock position can be displayed.)

3. Auto Test



a. Cassette tape in and Press REC button.
b. The unit operates automatically on tests.



a. Automatically operates REC (30sec), REW, PLAY, and STOP.
b. Displays the test status while auto test is progressing. (■ Mark shows the test status.)

B.AUTO TEST

NORMAL

Displays the test result.

* LOADING LOCK **
CYLINDER LOCK
TAKE-UP REEL LOCK
SUPPLY REEL LOCK
DEW
BATTERY UNDERCUT
STANDBY MODE

* Cause descriptions can be displayed until power shuts off.
** LOADING LOCK --- EJECT
STOP
STBY
REC / PB
(When it is possible to detect the lock position, loading lock position can be displayed.)

DISPLAY BUTTON

4. Motor Control Signal Check

C.SIGNAL TEST

CAPSTAN(M)	: STOP	FWD, REV
CYLINDER(M)	: ON	OFF
LOADING(M)	: STOP	FWD, REV
ZOOM(M)	: STOP	WIDE, TELE
FOCUS(M)	: STOP	FAR, NEAR
IRIS(F NO.)	: 01	NO.*
CASSETTE SW	: DOWN	UP
SAFETY TAB SW	: OK	BRK

Displays all of motor drive signals and switch inputs from mechanism chassis.
* Iris No. display

DISPLAY BUTTON

5. Operation Button Test - VCR

D.OPERATION TEST-VCR

PRESS BUTTON

				ON
STOP	: OFF	EJECT	: OFF	
REC	: OFF	UP	: OFF	
REW	: OFF	DOWN	: OFF	
FF	: OFF	SPEED	: SP	SLP
STILL	: OFF	PLAY	: OFF	ON
VCR/CAMERA	: VCR			CAMERA

Tests connection of VCR operation buttons by pressing each button.

DISPLAY BUTTON

6. Operation Button Test - Camera

E.OPERATION TEST-CAMERA

SET VCR/CAMERA SW TO
CAMERA BEFORE CHECK

				ON
TELE	: OFF	FOCUS	: OFF	
WIDE	: OFF	EIS	: OFF	
FADE	: OFF	D.ZOOM	: OFF	
HSS	: OFF	STILL	: OFF	
B.L.	: OFF		: OFF	

Tests connection of camera operation buttons by pressing each button.

DISPLAY BUTTON

E.OPERATION TEST-CAMERA

SET VCR/CAMERA SW TO
CAMERA BEFORE CHECK

				ON
TITLE	: OFF	MENU	: OFF	
	: OFF		: OFF	
	: OFF		: OFF	
	: OFF		: OFF	

DISPLAY BUTTON

7. Loading Test

F.LOADING TEST

SET VCR/CAMERA SW TO
VCR

START: REC BUTTON
QUIT : STOP BUTTON

Repeats loading / unloading 10 times without tape to check loading mechanism.

DISPLAY BUTTON

8. Mechanism Position

G.MECHANISM POSITION

■ EJECT

□ STOP STANDBY

□ STANDBY

□ REC/PLAY/FF

Displays mechanism position by monitoring mode switch.
(■ mark shows the current mechanism position.)

DISPLAY BUTTON

9. Safety Defeat

H.SAFETY DEFEAT

SET VCR/CAMERA SW TO
VCR

1.CLOSE CASSETTE DOOR
WITHOUT TAPE

2.PRESS OPERATION
BUTTONS

a. Defeats following safety functions. Cylinder lock, Reel lock, End of tape, Battery under cut, Safety tab switch.
b. It is possible to check mechanism movement without tape by pressing operation buttons in this mode.

Another Method to put the unit into Safety Defeat mode:
Connect a silicon diode between TP6010 and TP6012 on component side of the Main C.B.A.
Refer to "EXTENSION CABLES FOR SERVICE" in "SERVICE NOTES"

DISPLAY BUTTON

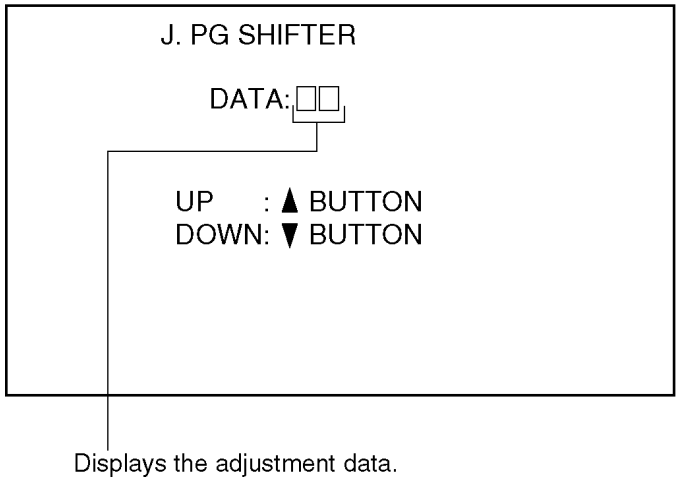
10. Tracking Fix

I. TRACKING FIX

Functions to fix tracking position to its center for tape path alignment.

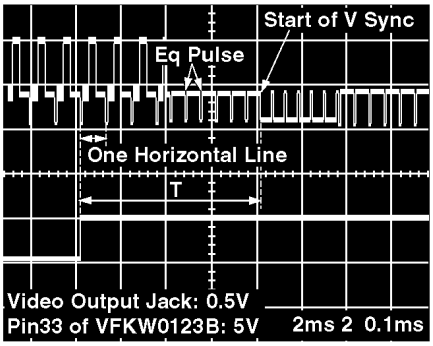
DISPLAY BUTTON

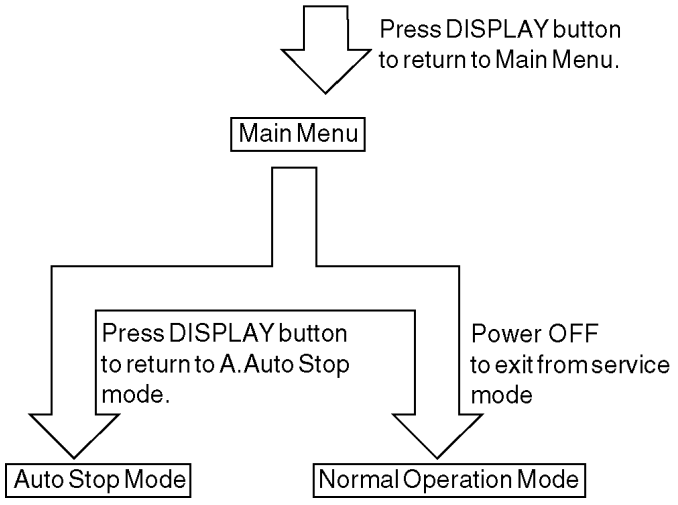
11. PG Shifter



This is a function to adjust Head Switching Position (PG SHIFTER) by pressing UP ▲ or Down ▼ button without using the Personal Computer.
To adjust with this function, the TP Board Kit, Audio/Video cable, oscilloscope, and VHS-C Alignment Tape (VFMS0004H6C) are necessary.
For connecting TP Board Kit, refer to "PREPARATION" in ELECTRICAL ADJUSTMENT.

Adjustment procedure
Press UP ▲ or Down ▼ button while playing back the VHS-C Alignment Tape so that T is 6.5 H±0.5 H (approx. 0.4 msec)




Press DISPLAY button to return to Main Menu.
Main Menu
Press DISPLAY button to return to A.Auto Stop mode.
Power OFF to exit from service mode
Auto Stop Mode
Normal Operation Mode

5.1.5. DESCRIPTION OF EMERGENCY INDICATIONS

When something unusual as shown below occurs in the deck, LED begins flashing for approx. 15 seconds to indicate an Emergency.

No.	Information	POWER LED	TALLY LED	Cause and Characteristic
①	Cylinder Lock	———	●	CYLINDER Motor stops in the REC, PB, CUE, REVIEW or STILL MODE for 2 second.
②	Takeup-Reel Lock	◐	———	There is no TAKEUP REEL sensor pulse for 2.3 seconds (PLAY, REC) or 0.7 second (CUE, REVIEW, FF, REW).
③	Battery Under Cut or DEW	⊗	———	When the Battery voltage drops to 5.3 V. Or excessive moisture condenses in the Unit.

NOTE :

◐ : Indicates LED Flashing at 3 Hz rate (duty 50%)

⊗ : Indicates LED Flashing at 0.8 Hz rate (duty 50%)

● : Indicates LED Flashing at 1 Hz rate (duty 50%)

5.1.6. METHOD FOR LOADING/UNLOADING OF MECHANISM

5.1.6.1. (Electrical Method)

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue to applying DC Power Supply.

Connect the TP Board Kit as shown, and apply 3VDC Power Supply (DC+ to TP21, DC- to TP20 for loading or DC+ to TP20, DC- to TP21 for unloading). Refer to "HOW TO USE TP BOARD KIT."

It normally takes approx. 6 seconds to unload the Mechanism from fully-loaded position to EJECT position.

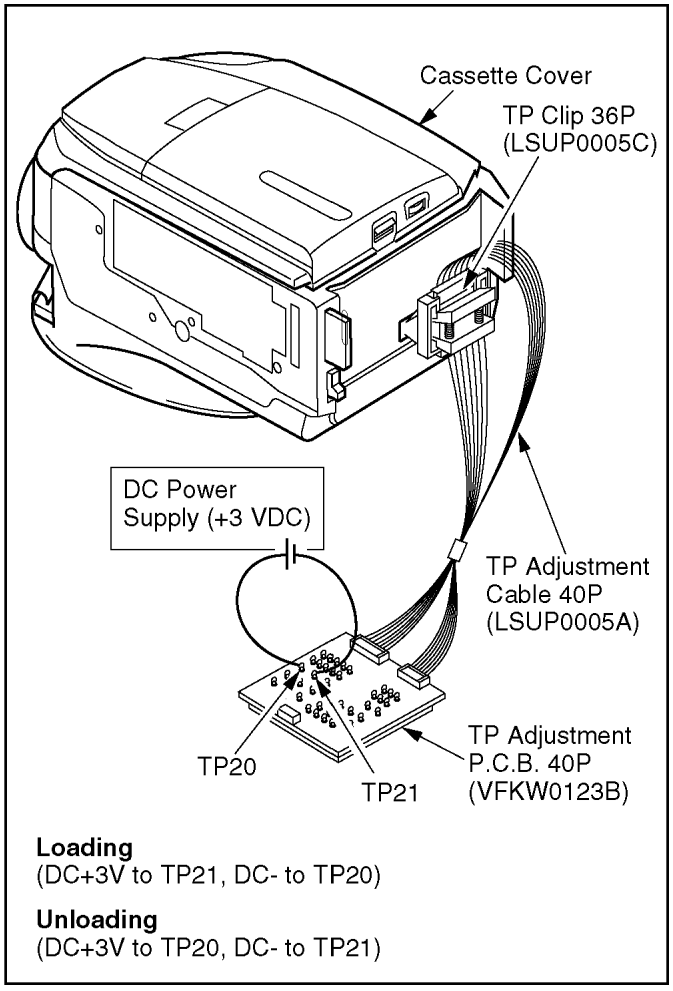


Fig. 3-1

5.1.6.2. (Manual Method) without Cabinet Parts

Turn the Gear of Reduction Gear Unit clockwise (for loading) or counterclockwise (for unloading) manually.

It is necessary to rotate approx. 80 times from fully-loaded position to EJECT position.

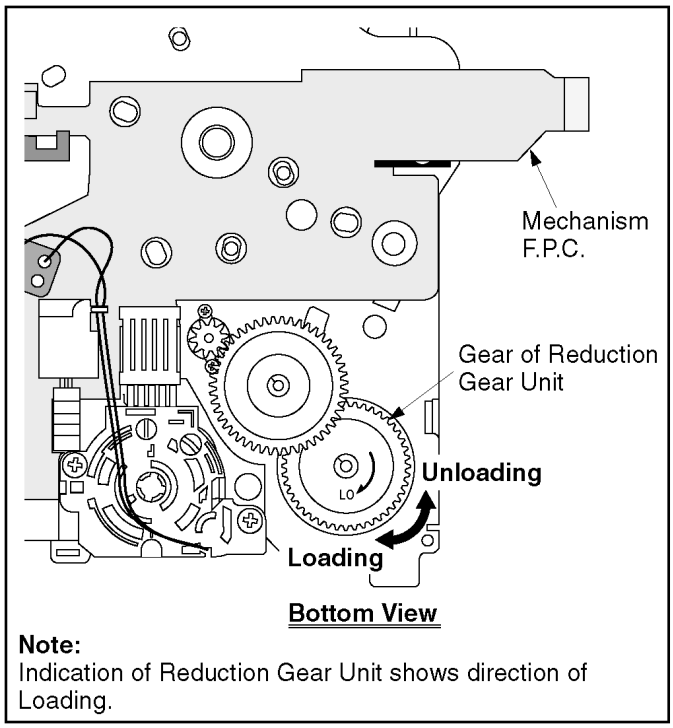


Fig. 3-2

5.1.7. HOW TO REMOVE A JAMMED TAPE

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue applying DC Power Supply.

5.1.7.1. Remove a jammed tape as follows:

1. Remove a Screw and remove the EVR Cover.

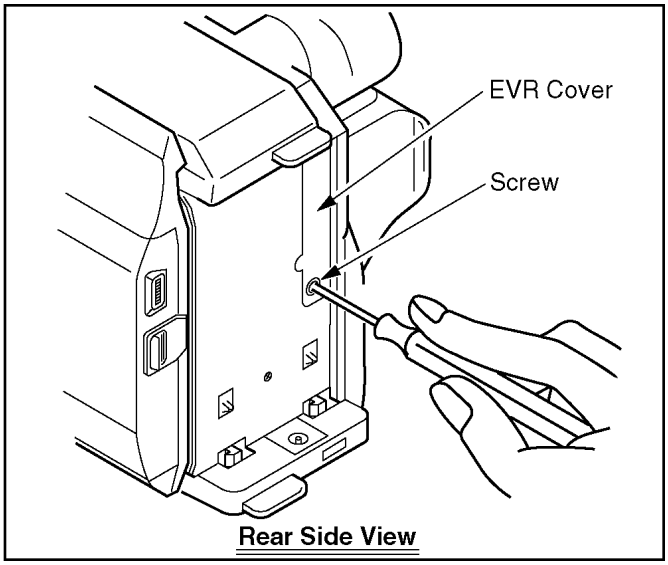


Fig. 4-1

2. Place the unit with the Cassette Cover facing upward.
3. Connect the TP Board Kit through the TP Board slot.
4. Apply +3VDC Power Supply to TP20 (+) and TP21 (-) on the TP Board to unload the mechanism. It normally takes approx. 6 seconds to unload the Mechanism to EJECT position. Then, remove the Power Supply and remove the TP Board Kit.

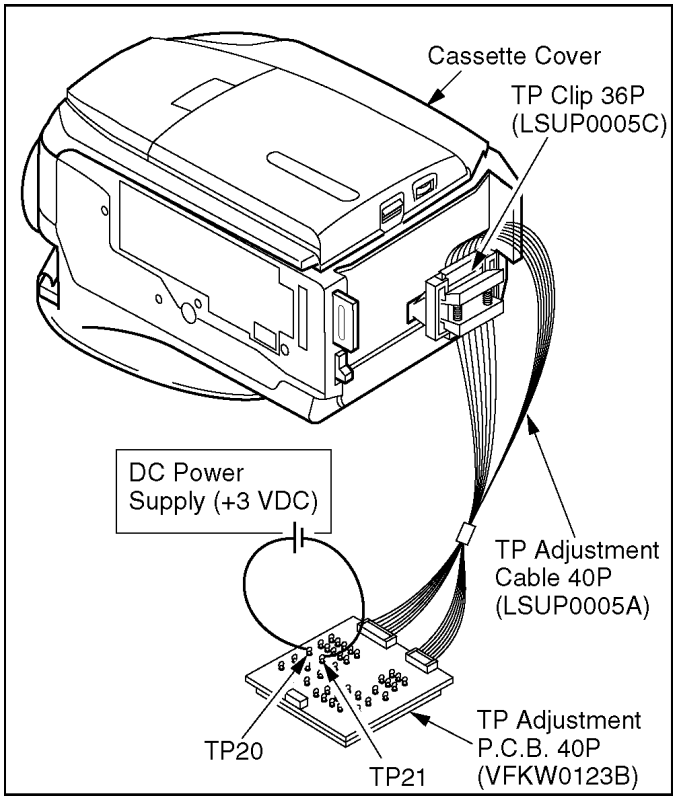


Fig. 4-2

5. Open the Cassette Cover fully.
6. Remove the tape slack by rotating the Takeup Reel Gear of the cassette tape as shown in Fig. 4-3.

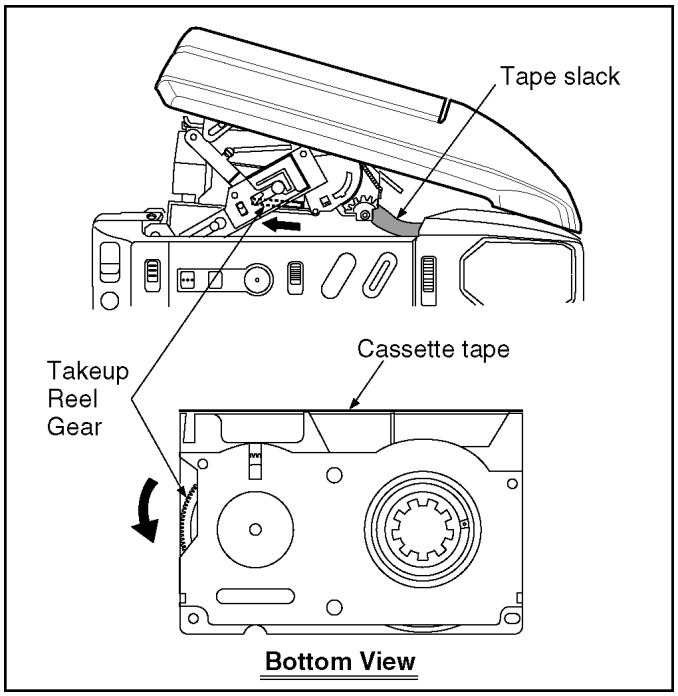


Fig. 4-3

7. Take out the cassette tape.
8. Connect the Power or Battery to set the Mechanism to STOP Position.

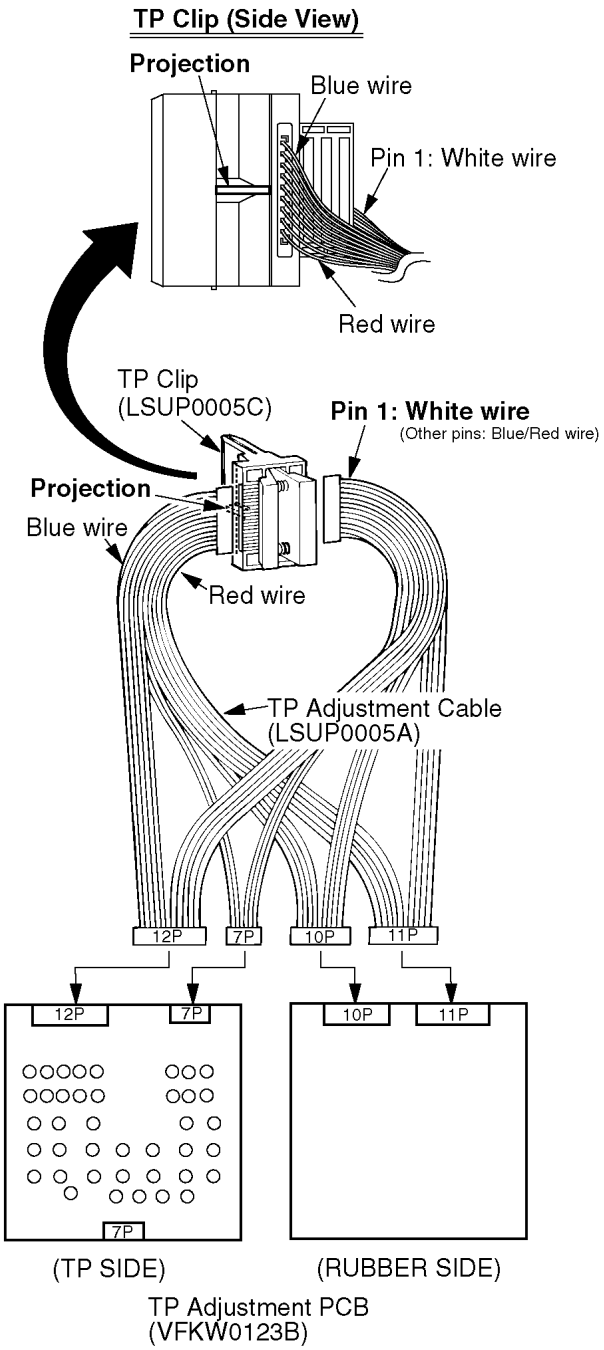
5.1.8. HOW TO USE TP BOARD KIT

5.1.8.1. TP Board Kit is required when:

1. performing "Tape Interchangeability Adjustment."
2. performing "EVR Adjustment."
3. the cassette tape is jammed. Refer to "HOW TO REMOVE A JAMMED TAPE."
4. loading or unloading the Mechanism (Electrical Method).

5.1.8.2. How to assemble TP Board Kit:

1. Assemble the TP Board Kit as shown.

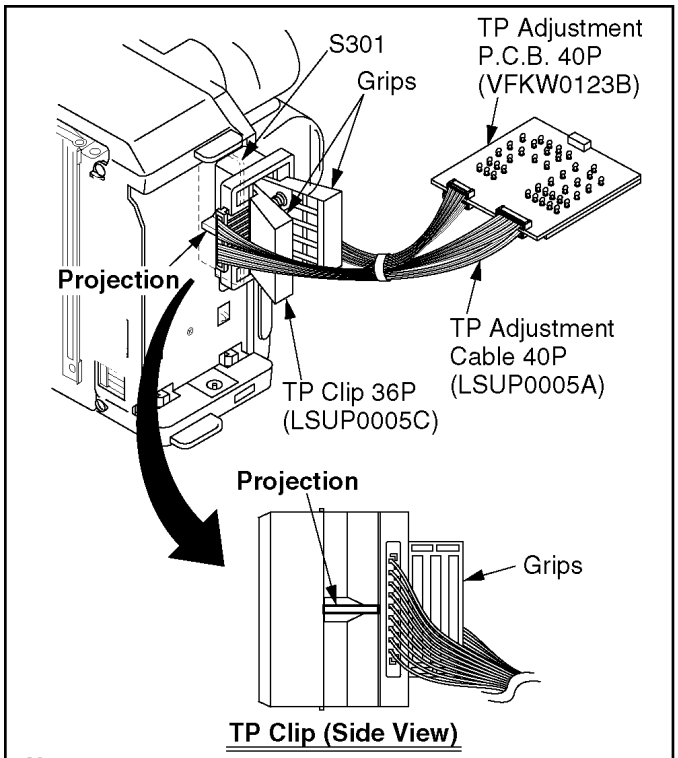


Note:
When inserting the TP Adjustment Cable into the TP Clip, be sure to insert the cable with white wire (1pin) into opposite side of the TP Clip Projection as shown.

Fig. 5-1

5.1.8.3. How to install TP Board Kit to Camcorder:

1. Install the TP Board Kit to Camcorder as shown.



Note:
When inserting the TP Clip to S301 on the camcorder, pinch the grips and be sure that the Projection is set to the left side as shown.

Fig. 5-2

5.1.8.4. Signal description on TP Adjustment P.C.B. 40P (VFKW0123B)

Pin No.	Signal
1	GND
2	IRIS
3	GND
4	(Not used)
5	(Not used)
6	EVR MODE
7	CAM +4.5V
8	EVR SERIAL DATA 1
9	V-SYNC
10	EVR SERIAL DATA 0
11	CAMERA RESET (L)
12	NC
13	EVR SERIAL CLOCK
14	NC
15	(Not used)
16	NC
17	NC
18	LUMINANCE
19	NC
20	LOADING MOTOR 0
21	LOADING MOTOR 1
22	SUPPLY REEL PULSE
23	(Not used)
24	SAFETY TAB BROKEN (L)
25	PB CTL PULSE
26	SUPPLY PHOTO TR (L)
27	CAP FG
28	(Not used)
29	H-SYNC
30	PB LUMINANCE
31	YNR
32	ENVELOPE
33	HEAD SW
34	(Not used)
35	GND
36	GND
37	REC CHROMINANCE
38	REC LUMINANCE
39	(Not used)
40	(Not used)

5.1.9. EEPROM DATA

CAUTION:

Be sure to save the EEPROM data using PC-EVR Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. as follows.

EEPROM IC

C.B.A.	EEPROM IC Ref. No.
Main C.B.A.	IC306

5.1.9.1. How to save the EEPROM data to your PC

1. Start up the PC-EVR Program.
2. Select "1. Read (Save)/Write AII EEPROM datas." in Main menu, and then press "Enter" key.
3. Select "1. Save all data of EEPROM" in Read (Save)/Write All EEPROM datas menu, and then press "Enter" key.
4. Input the File name, and then press "Enter" key. The data of EEPROM IC will be stored to your PC.

5.1.9.2. How to write the EEPROM data which was stored in your PC to EEPROM IC

When it becomes impossible to adjust during service and adjustment, write the EEPROM data which was stored in your PC to EEPROM IC as follows. And readjust the camcorder.

1. Start up the PC-EVR Program.
2. Select "1. Read (Save)/Write AII EEPROM datas." in Main menu, and then press "Enter" key.
3. Select "2. Data write using stored file" in Read (Save)/Write All EEPROM datas menu, and then press "Enter" key.
4. Input the saved file name, and then press "Enter" key. The data will be written in EEPROM IC.

5.1.9.3. How to initialize the EEPROM IC

When the EEPROM IC (IC306) or Main C.B.A. is replaced, be sure to write the initial data to EEPROM IC. And adjust the camcorder.

1. Start up the PC-EVR Program.
2. Select "1. Read (Save)/Write AII EEPROM datas." in Main menu, and then press "Enter" key.
3. Select "3. Data write with initial data" in Read (Save)/Write AII EEPROM datas menu, and then press "Enter" key. And press "Enter" key once again. The initial data will be written in EEPROM IC.

5.1.10. HOW TO ACCESS THE MANUAL TRACKING CONTROL

Press the UP▲(Tracking Up) or Down▼(Tracking Down) button to perform the Manual Tracking Adjustment in Playback Mode.

5.1.11. CONNECTION OF THE FLEXIBLE CABLES TO TRAP CONNECTORS

Plug No.	No. of Pins	C.B.A.
FP1	28 Pin	Main C.B.A.
FP3	22 Pin	Main C.B.A.
FP4	6 Pin	Main C.B.A.
FP6	39 Pin	Main C.B.A.
FP7	14 Pin	Main C.B.A.
FP8	12 Pin	Main C.B.A.
FP9	20 Pin	Main C.B.A.
FP11	13 Pin	Main C.B.A.
FP901	6 Pin	EVF C.B.A. **(Model: B, C, D, E, F)**
FP901	6 Pin	Color EVF A C.B.A. **(Model: A)**
FP902	16 Pin	Color EVF A C.B.A. **(Model: A)**
FP1201	21 Pin	LCD C.B.A. **(Model: C, D, E, F)**
FP1202	5 Pin	LCD C.B.A. **(Model: C, D, E, F)**
FP3501	12 Pin	Head Amp C.B.A.
FP9001	24 Pin	LCD C.B.A. **(Model: C, D, E, F)**
FP9002	18 Pin	Relay C.B.A. **(Model: C, D, E, F)**

5.1.12. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENT

The following procedures are recommended for the replacement of the leadless components used in this Unit.

1. Preparation for replacement
   a. Soldering Iron

      Use a pencil-type soldering iron using less than 30 watts.

   b. Solder

      Eutectic Solder (Tin 63%, Lead 37%) is recommended.

   c. Soldering time

      Do not apply heat for more than 4 seconds.

   d. Preheating

      Leadless capacitor must be preheated before installation.

      (130°C ~ 150°C, for about 2 minutes.)

Note:

a. Leadless component must not be reused after removal.

b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component

   Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove leadless component with a twisting motion.

Note:

a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action. The leadless component is attached to the PCB with glue. So carefully twist the component when removing it so as not to break or damage any fail under the component.

b. Take care not to break the copper foil on the printed board.

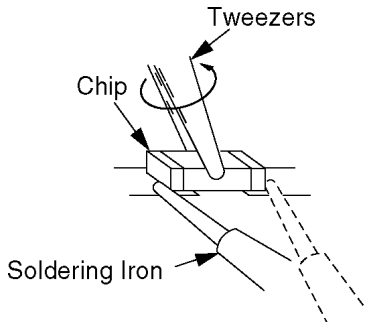


Fig. 6-1

3. Installation of the leadless component
   a. Presolder the contact points of the circuit board.

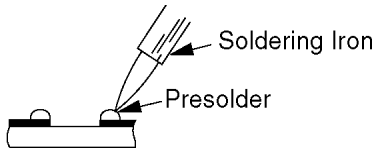


Fig. 6-2

b. Press the part downward with tweezers and solder both electrodes as shown below.

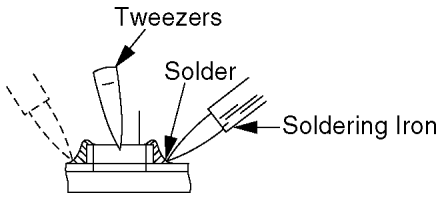


Fig. 6-3

Note:

Do not glue the replacement leadless component to the circuit board.

5.1.13. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handlings techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

5.1.14. MODEL NO. IDENTIFICATION MARK

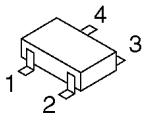
Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
NOT USED	Z

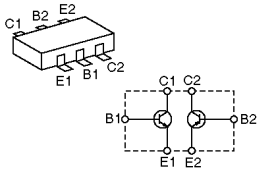
Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for Mark "Z."

5.2. IC, TRANSISTOR AND CHIP PART INFORMATION

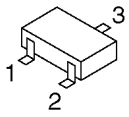
MAIN C.B.A.



S80839ANNPT2, R311Q391ATR, XC61CN3902NR

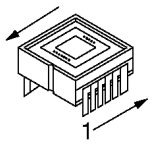


XN4601, IMZ1T108



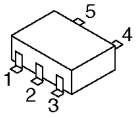
XC62FP4502PR

CCD C.B.A.



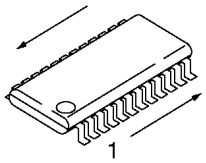
MN371132FT-M

LCD C.B.A.

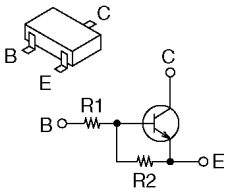


TA75S558F85L

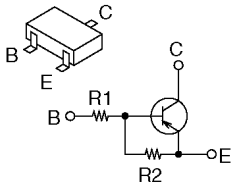
GENERAL C.B.A. / ASS'Y PARTS



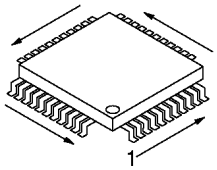
AN2515NS, AN3365SB-E1, BA10324AFVE1, BR9040FV-DE2, BA6288FS-E2, MN3112SA-E1, MN38663S, S3510AEFJTB, LB1837MLTEL3, LB1837MTEL3, LB1837M-TE-L, LM324DB, UN224-TX



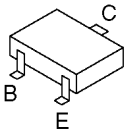
UN5212(R1=22K, R2=22K), UN5217(R1=22K, R2=OPEN), DTC124EU(R1=22K, R2=22K), DTC124TU(R1=22K, R2=OPEN),



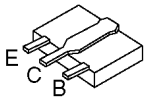
UN5111(R1=10K, R2=10K), UN5112(R1=22K, R2=22K), UN5113(R1=47K, R2=47K), UN5115(R1=10K, R2=OPEN), DTA124EU(R1=22K, R2=22K), DTA144EU(R1=, R2=), DTA114EU(R1=10K, R2=10K) DTA114TU UN5114



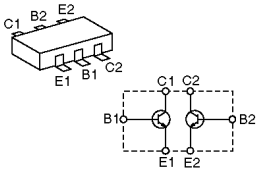
AN2109NFHQ, AN2401NFH, AN2536FHQ, AN2545FHQ, AN3897FH, BA7757BK, MN67324, MN5293-1, MN101D02FWD1, MN102L62FCA



2SA1037K146R, 2SA1576A106R, 2SB1424T100Q, 2SB1424T100P, 2SB1585, 2SB1218A, 2SB970, 2SB709A, 2SC3931, 2SC2412K1, 2SC4081T106R, 2SD1819A, 2SD602, 2SD601A, 2SD2432, 2SD602A, 2SK1958, 2SK1299STL



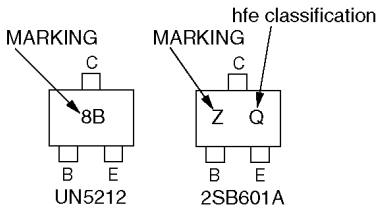
2SB1073, 2SD1119, 2SD968A, RH5RE45AA-T1 2SB1386T100Q, 2SB1386T100R, 2SD2150T100R, 2SB1628-T1ZX, 2SB1628-T1ZY

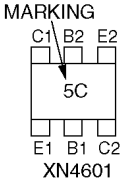


XN4501, IMX1T108

HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB1218A	8B	UN5212
B	2SB709A	1R	2SB1585
B	2SC4081T106R	8H	UN5217
C	DTA144EU	5H	XN4501
F	2SA1037K146R	5C	XN4601
T	2SD1119	6B	UN5112
I	2SB1073	8HR	DTC124TU
U	2SC3931	MC	MA143
Z	2SD601A	2A	MA728
Z	2SD1819A	1B	MA111
AEPJ	2SB1424T100Q	12H	MA3120WA
ZX	2SB1628	MO	MA142WA
ZY	2SB1628	MU	MA142WK
1R	2SB970		
V	2SD968A		
W	2SD602		
G	2SK1958		
6A	UN5111		
6C	UN5113		
6E	UN5115		





6 DISASSEMBLY/ASSEMBLY PROCEDURES

6.1. CABINET SECTION

6.1.1. Disassembly Flowchart

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.

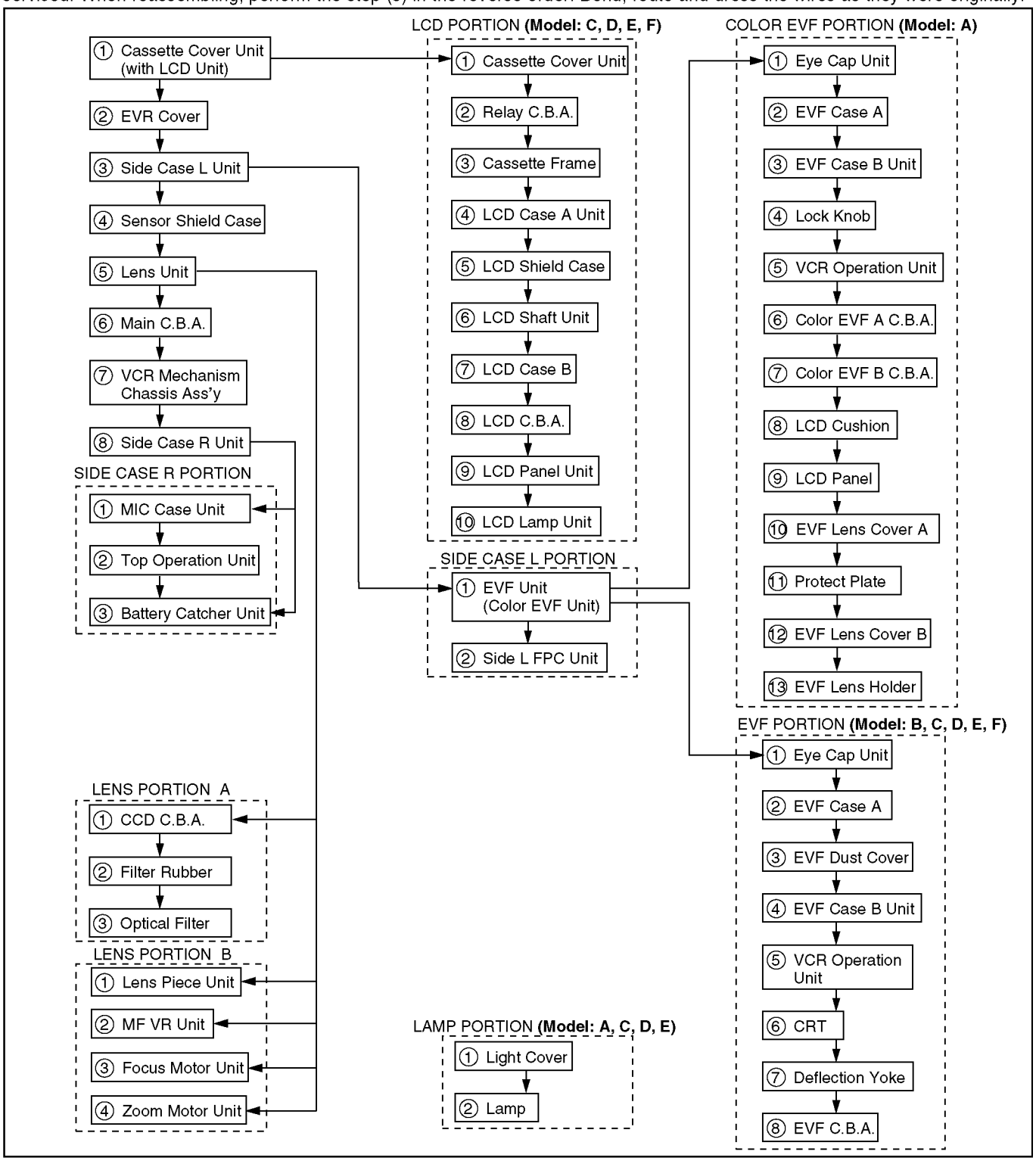

① Cassette Cover Unit (with LCD Unit)
② EVR Cover
③ Side Case L Unit
④ Sensor Shield Case
⑤ Lens Unit
⑥ Main C.B.A.
⑦ VCR Mechanism Chassis Ass'y
⑧ Side Case R Unit
SIDE CASE R PORTION
① MIC Case Unit
② Top Operation Unit
③ Battery Catcher Unit
LENS PORTION A
① CCD C.B.A.
② Filter Rubber
③ Optical Filter
LENS PORTION B
① Lens Piece Unit
② MF VR Unit
③ Focus Motor Unit
④ Zoom Motor Unit
LCD PORTION (Model: C, D, E, F)
① Cassette Cover Unit
② Relay C.B.A.
③ Cassette Frame
④ LCD Case A Unit
⑤ LCD Shield Case
⑥ LCD Shaft Unit
⑦ LCD Case B
⑧ LCD C.B.A.
⑨ LCD Panel Unit
⑩ LCD Lamp Unit
SIDE CASE L PORTION
① EVF Unit (Color EVF Unit)
② Side L FPC Unit
LAMP PORTION (Model: A, C, D, E)
① Light Cover
② Lamp
COLOR EVF PORTION (Model: A)
① Eye Cap Unit
② EVF Case A
③ EVF Case B Unit
④ Lock Knob
⑤ VCR Operation Unit
⑥ Color EVF A C.B.A.
⑦ Color EVF B C.B.A.
⑧ LCD Cushion
⑨ LCD Panel
⑩ EVF Lens Cover A
⑪ Protect Plate
⑫ EVF Lens Cover B
⑬ EVF Lens Holder
EVF PORTION (Model: B, C, D, E, F)
① Eye Cap Unit
② EVF Case A
③ EVF Dust Cover
④ EVF Case B Unit
⑤ VCR Operation Unit
⑥ CRT
⑦ Deflection Yoke
⑧ EVF C.B.A.

Fig. D1

Note : a. When removing the cabinet, work with care so as not to break the Locking Tabs.
b. Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
c. When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.
d. Do not supply power to the unit during disassembly and reassembly.

6.1.2. Main Parts Portion

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Cassette Cover Unit with LCD Unit	D2	2(L-1), (L-2), P9001
②	EVR Cover	D3	(S-1)
③	Side Case L Unit	D3	(S-2), (S-3), 3(S-4), (S-5), 2(S-6), Top Operation receptacle, P3, P38
④	Sensor Shield Case	D4	(S-7)
⑤	Lens Unit	D4	2(S-8), (L-3), FP4, FP8, FP9
⑥	Main C.B.A.	D5	2(S-9), (S-10), FP1, FP3, FP6, FP7, FP11, B2, P2, P13
⑦	VCR Mechanism Chassis Ass'y	D6	2(S-11), 2(S-12)
⑧	Side Case R Unit	D6	----------

A B C D

How to read chart shown above:

A: Order of Procedure steps.

When reassembling, perform steps(s) in reverse order. These numbers are also used as the identification (location) No. of parts in Figures.

B: Part to be removed or installed.

C: Fig. No. showing Procedure or Part Location.

D: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

3(S-1) = 3 Screws (S-1), 2(L-1) = 2 Looking Tabs (L-1)

6.1.2.1. Cassette Cover Unit (with LCD Unit)

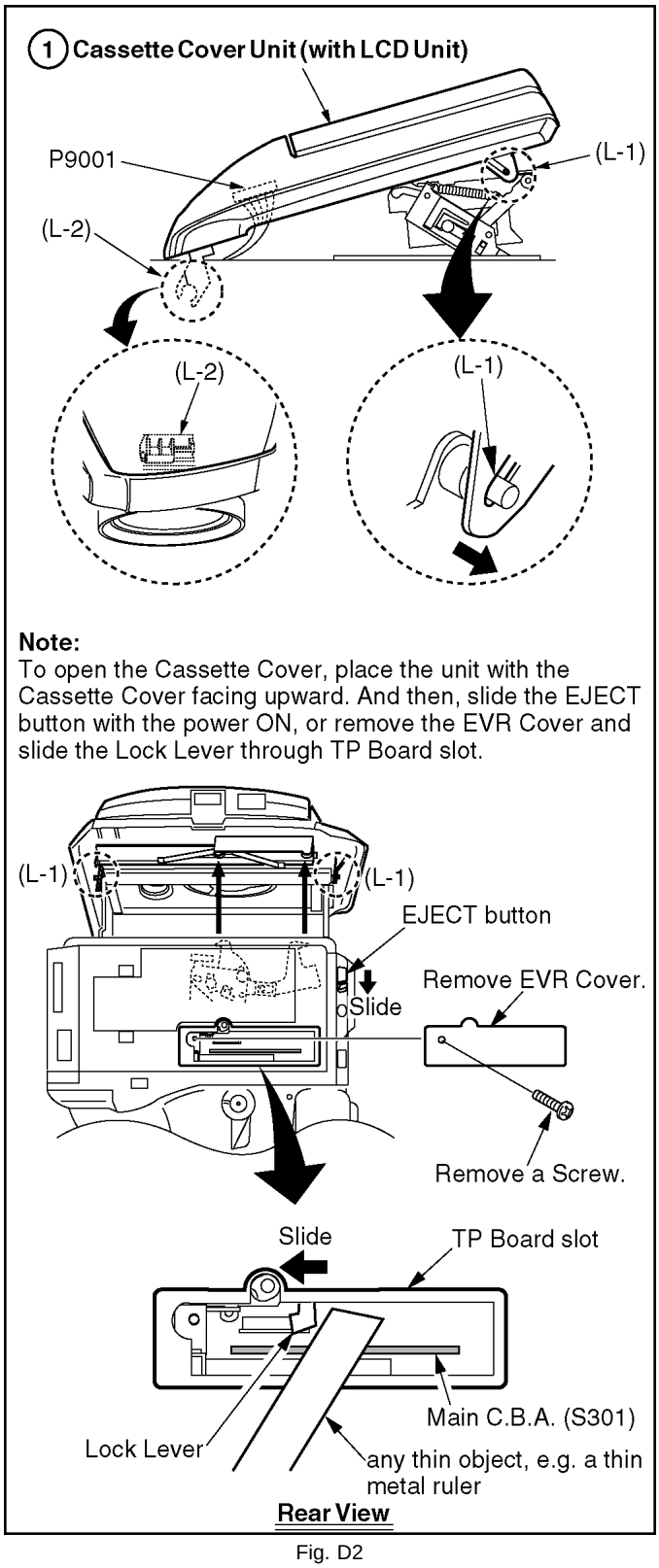
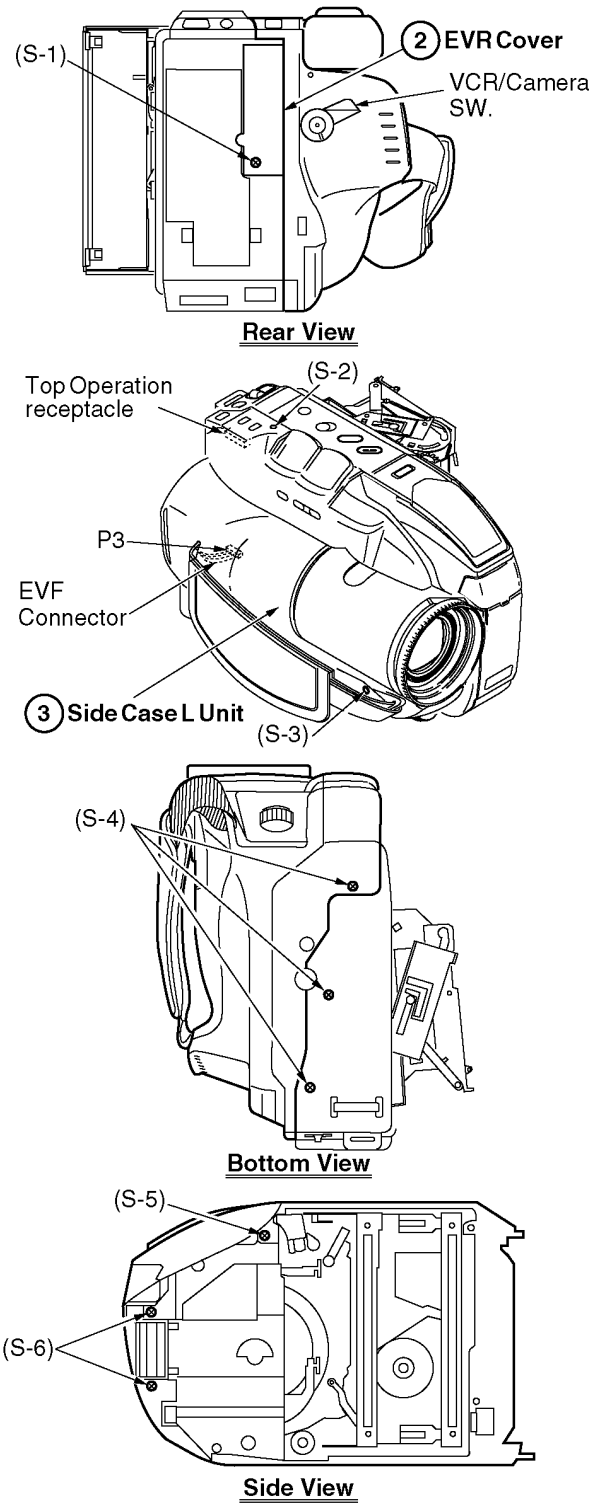

① Cassette Cover Unit (with LCD Unit)
P9001
(L-1)
(L-2)
(L-2)
(L-1)
Note:
To open the Cassette Cover, place the unit with the Cassette Cover facing upward. And then, slide the EJECT button with the power ON, or remove the EVR Cover and slide the Lock Lever through TP Board slot.
(L-1)
(L-1)
EJECT button
Slide
Remove EVR Cover.
Remove a Screw.
Slide
TP Board slot
Main C.B.A. (S301)
Lock Lever
any thin object, e.g. a thin metal ruler
Rear View

Fig. D2

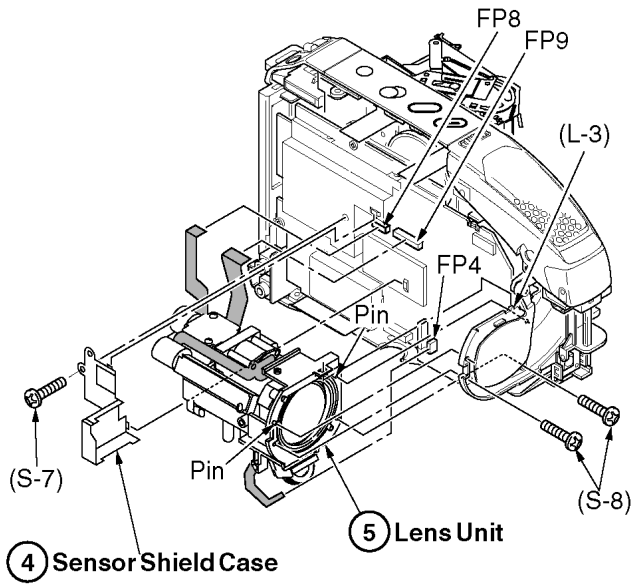
6.1.2.2. EVR Cover, Side Case L Unit



Reassembly Note:
(1) Before installing the Side Case L Unit, set the VCR / Camera SW. to Camera mode.
(2) Connect the EVF Connector to the Connector P3 on the Main C.B.A.
(3) Install the Side Case L Unit, then tighten Screws.

Fig. D3

6.1.2.3. Sensor Shield Case, Lens Unit



Reassembly Note:
When installing the Lens Unit, insert Pins into Holes while setting the Locking Tab (L-3).

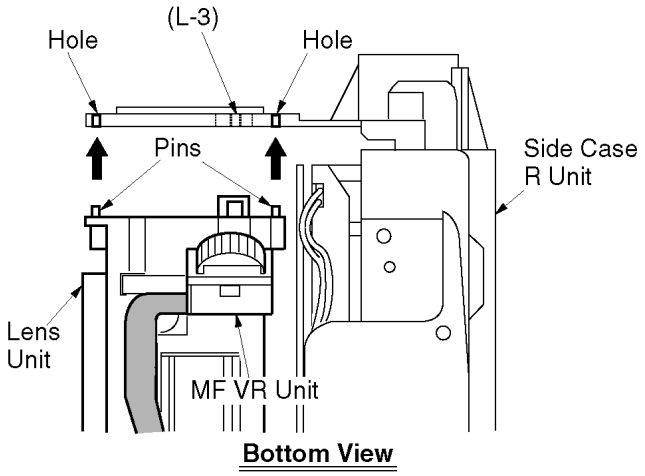


Fig. D4

6.1.2.4. Main C.B.A.

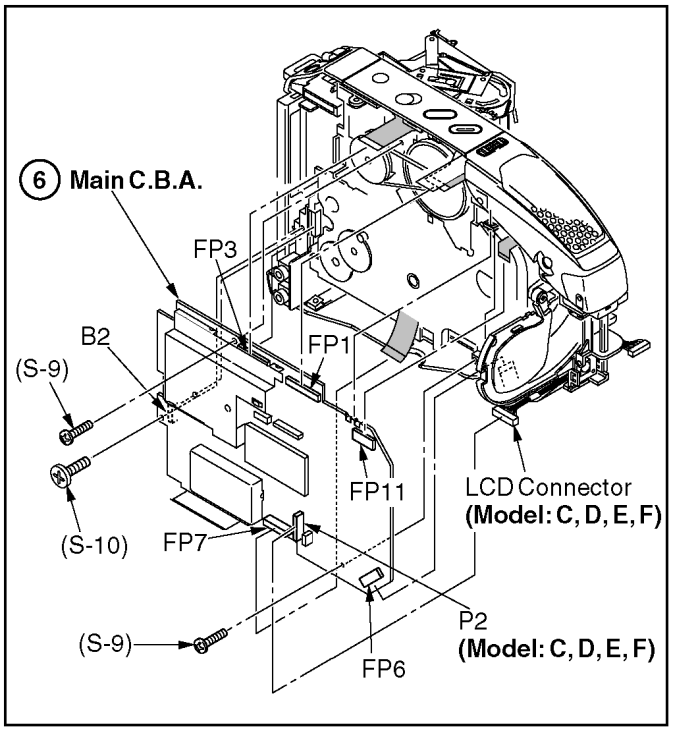
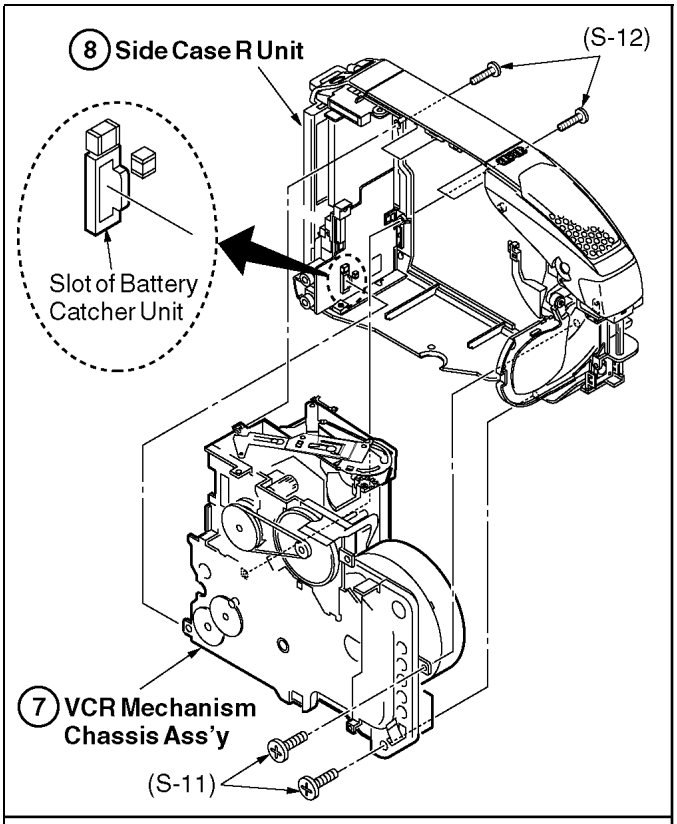


Fig. D5

6.1.2.5. VCR Mechanism Chassis Ass'y, Side Case R Unit



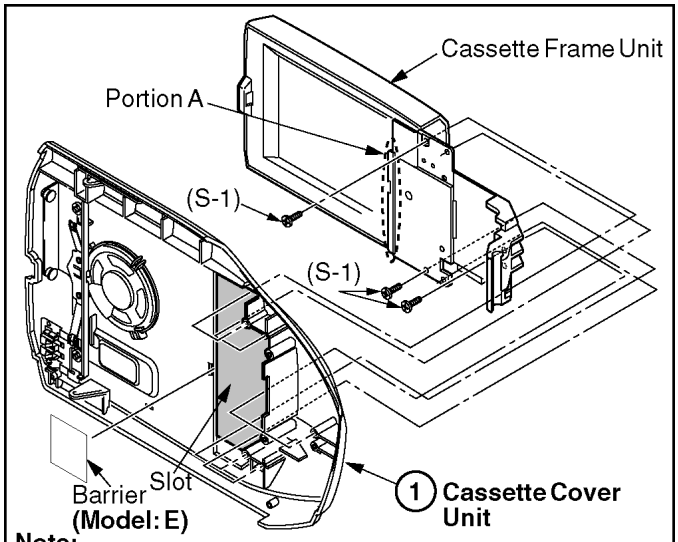
Reassembly Note:
The VCR Mechanism Chassis Ass'y is supplied with a Lock Screw installed. Make sure to remove the Lock Screw from Cassette Up Unit when replacing the VCR Mechanism Chassis Ass'y.

Fig. D6

6.1.3. LCD PORTION

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Cassette Cover Unit	D7-1	3(S-1), Barrier
②	Relay C.B.A.	D7-2	(S-2), FP9002
③	Cassette Frame	D7-2	2(S-3)
④	LCD Case A Unit	D7-3	2(S-4), 7(L-1)
⑤	LCD Shield Case	D7-4	2(S-5)
⑥	LCD Shaft Unit	D7-4	FP1201
⑦	LCD Case B	D7-4	2(S-6)
⑧	LCD C.B.A.	D7-5	FP9001, Unsolder
⑨	LCD Panel Unit	D7-5	8(L-2)
⑩	LCD Lamp Unit	D7-6	3(L-3), LCD Sheet Unit

6.1.3.1. Cassette Cover Unit



Note:
1. **Removal of the Cassette Cover Unit**
(1) Remove the Barrier.
(2) Remove 3 Screws (S-1).
(3) Open the LCD Case Unit as shown.
(4) Push Portion A out of the slot shown in gray, then pull out the Cassette Frame Unit.

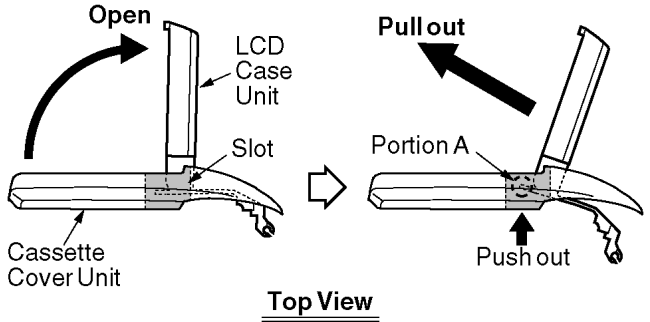
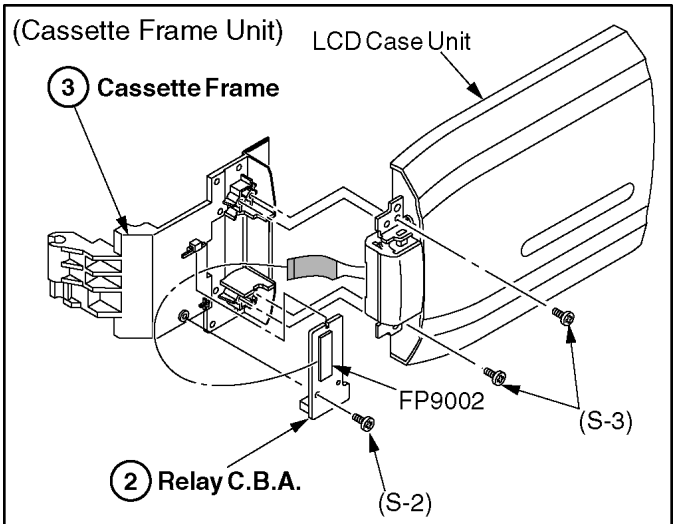


Fig. D7-1

6.1.3.2. Relay C.B.A., Cassette Frame



Reassembly Note:
When installing the Relay C.B.A. and the Cassette Frame, connect the LCD F.P.C. to Connector FP9002 on Relay C.B.A. as shown.

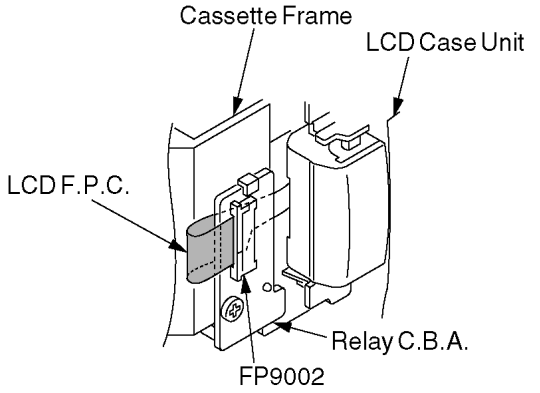
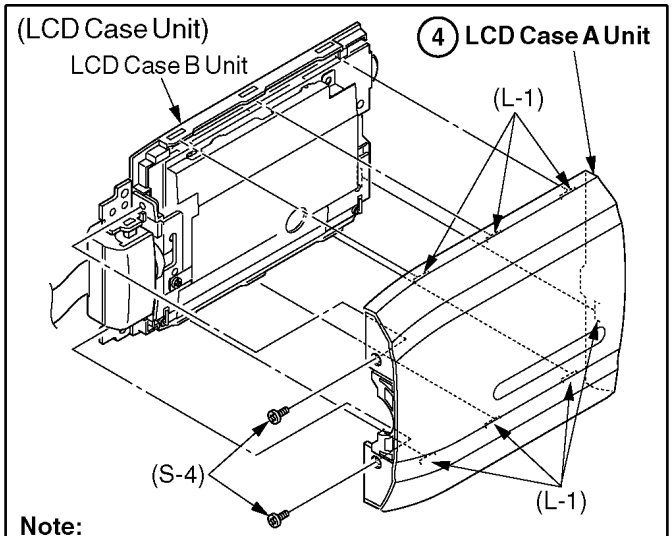


Fig. D7-2

6.1.3.3. LCD Case Ass'y



Note:
(1) To gain access to 2 Screws (S-4), turn the Angles of LCD Shaft Unit as indicated by the arrow ①.
(2) Then, turn the LCD Case Unit as indicated by the arrow ②.
(3) Remove 2 Screws (S-4).

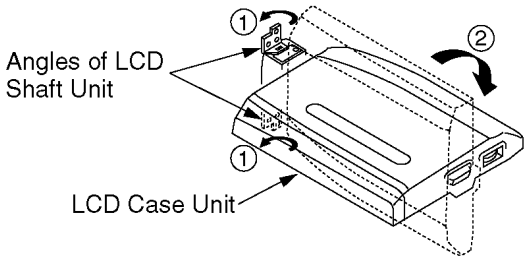
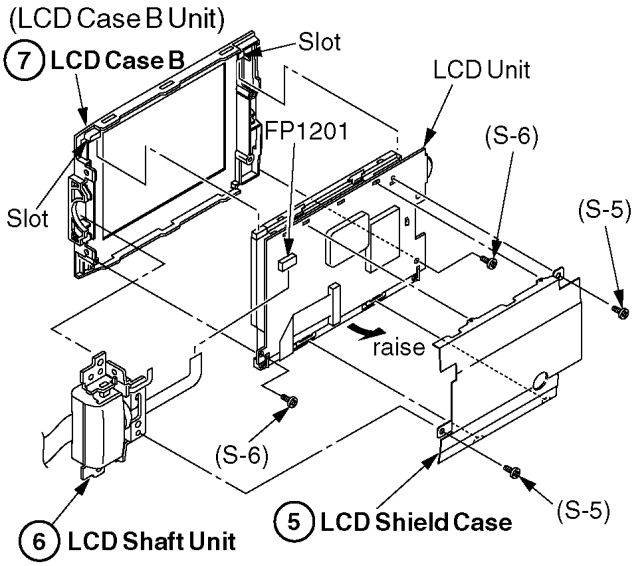


Fig. D7-3

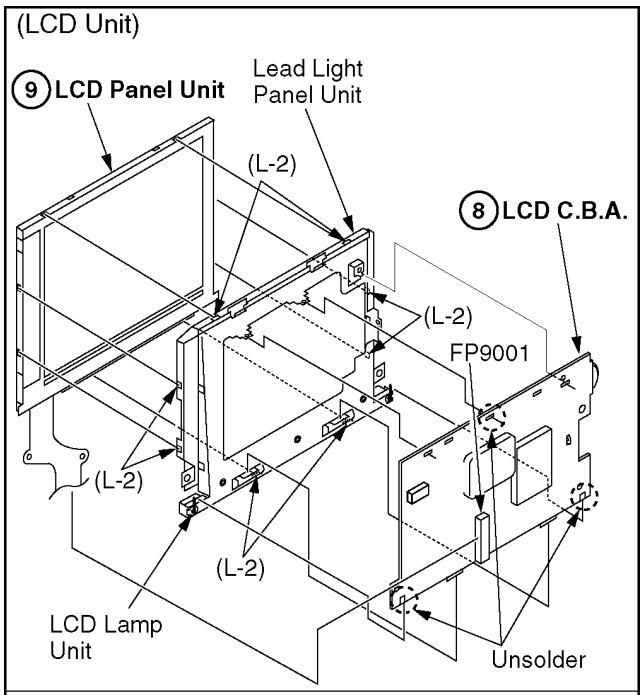
6.1.3.4. LCD Shield Case, LCD Shaft Unit, LCD Case B



Note:
When removing the LCD Case B, pull the LCD Unit out of the slots while raising the lower portion of LCD Unit as indicated by the arrow.

Fig. D7-4

6.1.3.5. LCD C.B.A., LCD Panel Unit

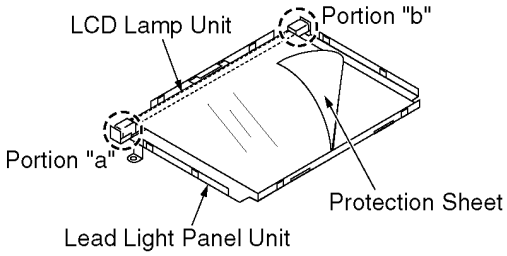


Reassembly Note:

(1) When replacing the Lead Light Panel Unit, make sure to remove Protection Sheet as shown below.

(2) Use extreme care when handling the Lead Light Panel Unit and the LCD Panel Unit to avoid damage, dust, and spots (especially fingerprints, etc.).
The use of clean cotton gloves when available is highly recommended.

(3) Be careful not to apply any pressure to Portion "a" and "b" of the LCD Lamp Unit as shown below.



(4) After replacing the Lead Light Panel Unit, confirm that the Terminal of LCD Lamp Unit is soldered correctly as shown below.

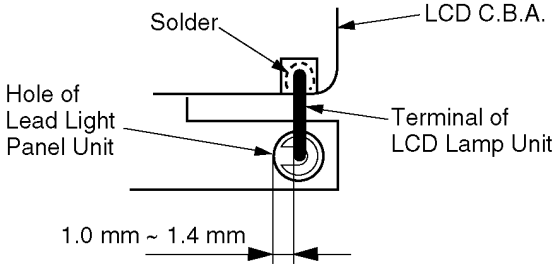
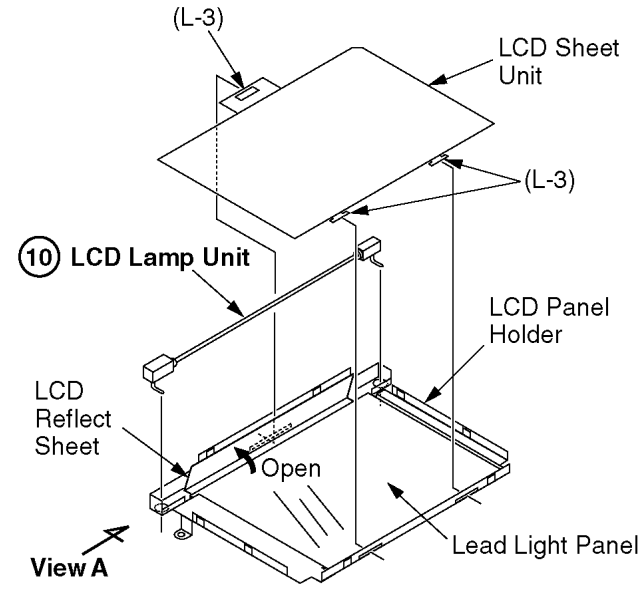


Fig. D7-5

6.1.3.6. LCD Lamp Unit



Reassembly Note:

(1) When installing the LCD Lamp Unit, confirm that the LCD Lamp Unit is positioned as shown below.

(2) Use extreme care when handling the Lead Light Panel and the LCD Sheet Unit to avoid damage, dust, and spots (especially fingerprints, etc.).

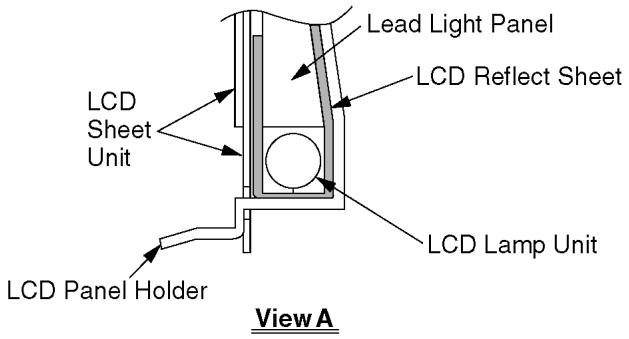
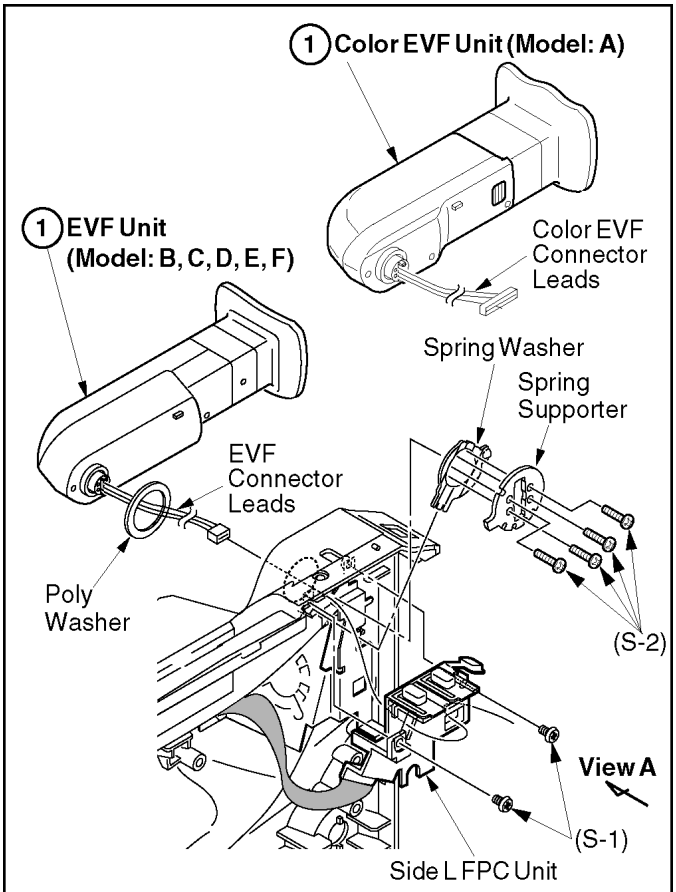


Fig. D7-6

6.1.4. SIDE CASE L PORTION

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	EVF Unit (Color EVF Unit)	D8-1	2(S-1), 4(S-2), Spring Supporter, Spring Washer, Poly Washer
②	Side L FPC Unit	D8-2	(S-3), 3(S-4), 2(L-1), Arm, Arm Holder

6.1.4.1. EVF Unit (Color EVF Unit)



Reassembly Note:
After installing, confirm that EVF or Color EVF Connector Leads are set correctly on the Side L FPC Unit as shown.

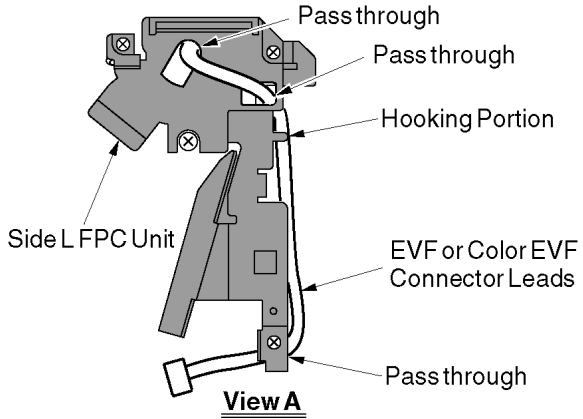
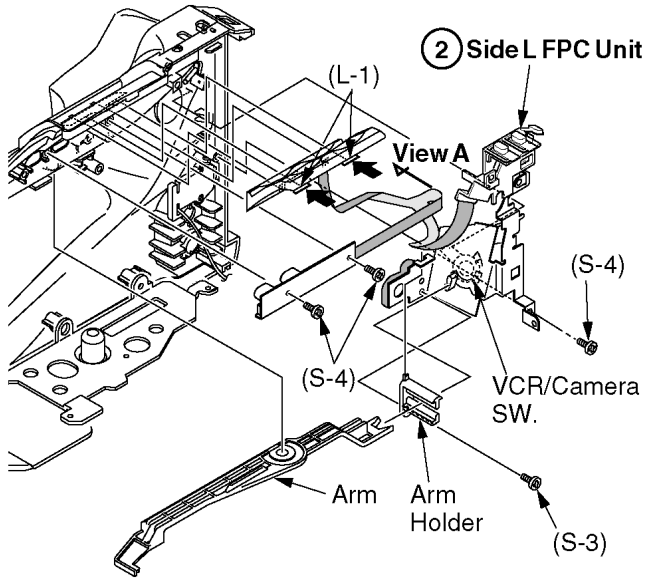
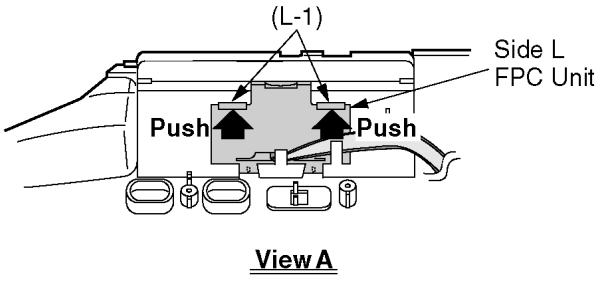


Fig. D8-1

6.1.4.2. Side L FPC Unit



Note:
1. **Removal of the Side L FPC Unit**
(1) Remove the Arm first.
(2) Remove Screw (S-3). Then, remove the Arm Holder.
(3) Remove 3 Screws (S-4).
(4) Remove the Side L FPC Unit after releasing 2 Locking Tabs (L-1) by pushing as indicated by the arrow.



Reassembly Note:
When installing the Side L FPC Unit, set the VCR/Camera SW. to Camera mode.

Fig. D8-2

6.1.5. EVF PORTION (Model: B, C, D, E, F)

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Eye Cap Unit	D9-1	(S-1), (L-1)
②	EVF Case A	D9-2	2(S-2), 5(L-2)
③	EVF Dust Cover	D9-2	-----
④	EVF Case B Unit	D9-2	-----
⑤	VCR Operation Unit	D9-3	FP901
⑥	CRT	D9-3	CRT Socket Unit
⑦	Deflection Yoke	D9-3	P903
⑧	EVF C.B.A.	D9-3	-----

Note:

When disassembling or reassembling, make sure that no dust gets in EVF Unit.

6.1.5.1. Eye Cap Unit

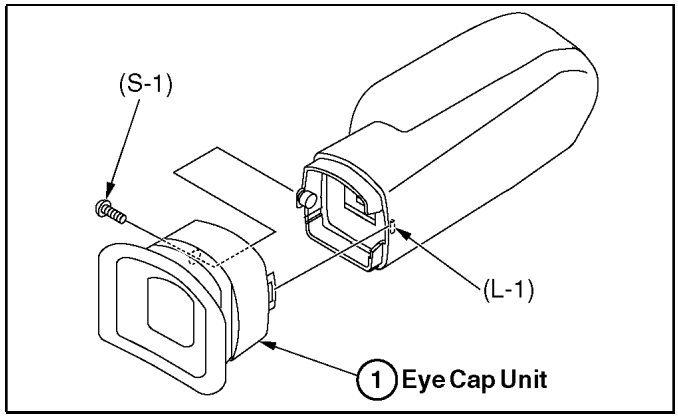


Fig. D9-1

6.1.5.2. EVF Case A, EVF Dust Cover, EVF Case Unit

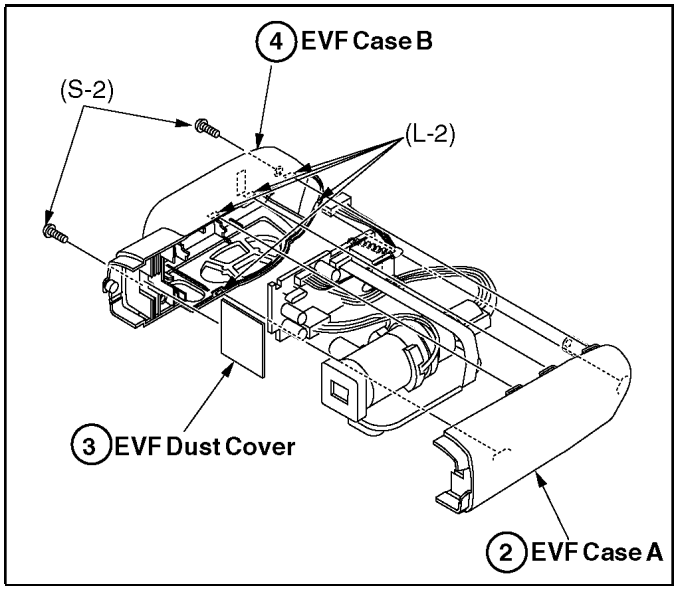


Fig. D9-2

6.1.5.3. VCR Operation Unit, CRT, Deflection Yoke, EVF C.B.A.

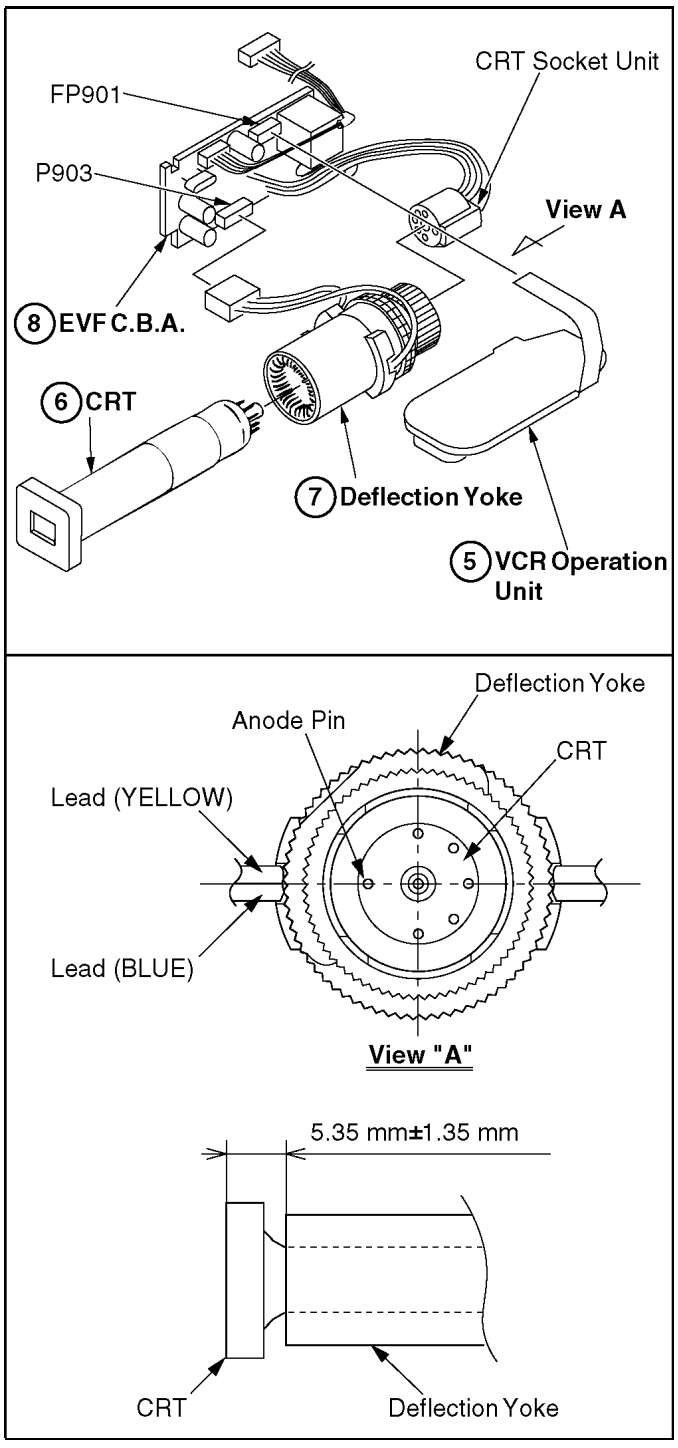


Fig. D9-3

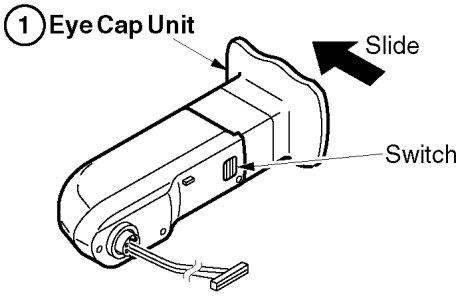
6.1.6. COLOR EVF PORTION (Model: A)

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Eye Cap Unit	D10-1	-----
②	EVF Case A	D10-2	2(S-1), 6(L-1)
③	EVF Case B Unit	D10-2	-----
④	Lock Knob	D10-2	Lock Spring
⑤	VCR Operation Unit	D10-2	FP901
⑥	Color EVF A C.B.A.	D10-3	FP902, B902
⑦	Color EVF B C.B.A.	D10-3	4(L-2)
⑧	LCD Cushion	D10-3	-----
⑨	LCD Panel	D10-3	-----
⑩	EVF Lens Cover A	D10-3	2(L-3)
⑪	Protect Plate	D10-3	-----
⑫	EVF Lens Cover B	D10-3	-----
⑬	EVF Lens Holder	D10-3	-----

Note:

When disassembling or reassembling, make sure that no dust gets in Color EVF Unit.

6.1.6.1. EVR Cover, Side Csae L Unit



Note:
To remove the Eye Cap Unit, slide the Eye Cap Unit as indicated by the arrow while sliding Switch.

Fig. D10-1

6.1.6.2. EVF Case A, EVF Case B Unit, Lock Knob, VCR Operation Unit

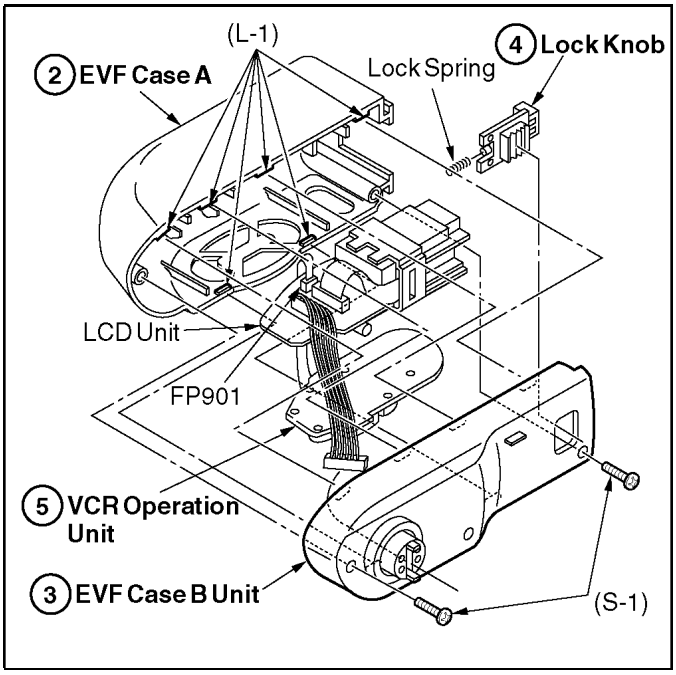
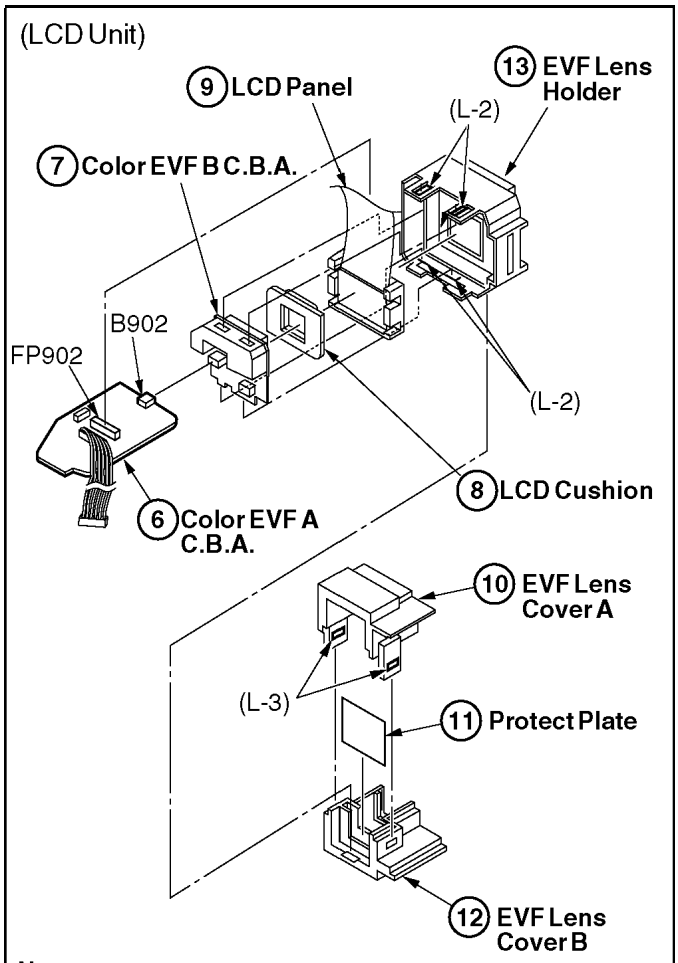


Fig. D10-2

6.1.6.3. Color EVF A C.B.A., Color EVF B C.B.A., LCD Cushion, LCD Panel, Protect Plate, EVF Lens Cover B, EVF Lens Holder



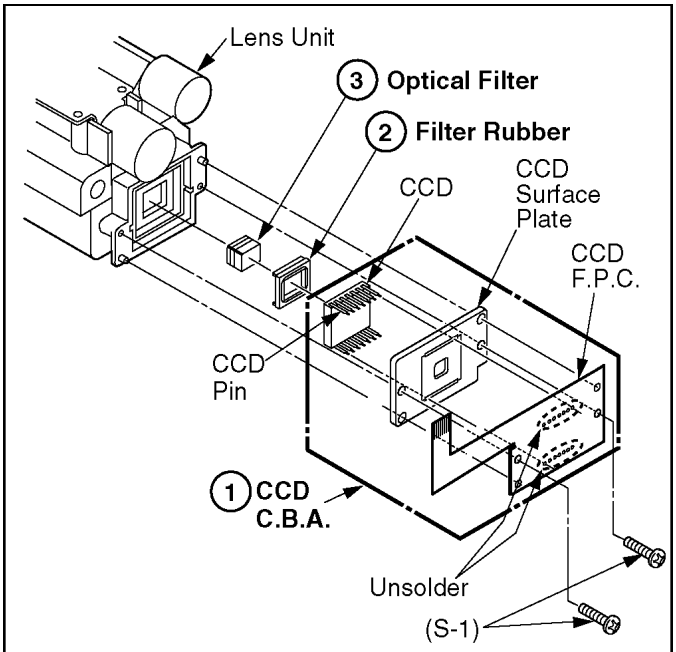
Note:
Use extreme care when handling the LCD Panel to avoid damage, dust, and spots (especially fingerprints, etc.).

Fig. D10-3

6.1.7. LENS PORTION A

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	CCD C.B.A.	D11-1	2(S-1)
②	Filter Rubber	D11-1	-----
③	Optical Filter	D11-1	-----

6.1.7.1. CCD C.B.A., Filter Rubber, Optical Filter



Note:

1. **Removal of the CCD and the CCD Surface Plate**

(1) Unsolder the CCD Pins on the CCD F.P.C.
(2) Remove the CCD and the CCD Surface Plate from the CCD F.P.C.

CAUTION:

(1) When removing the CCD C.B.A., take care so that the Optical Filter does not fall out.
(2) Take extreme care when removing the CCD because it is easily damaged by static electricity.
Use a Wrist Strap while removing and installing.
(3) Do not apply heat to the CCD directly when soldering. Keep soldering time to a minimum to prevent damage to the CCD.
(4) Do not touch the CCD window surface when servicing.

Fig. D11-1

Reassembly Note:

1. **Installation of the Optical Filter**

(1) Install the Optical Filter in the Lens Unit correctly.
Note:
Be sure to install the Optical Filter with the thinnest layer of the Optical Filter facing toward the Lens Unit. Make sure that no dust gets on the Optical Filter and in the Lens Unit. Clean the Optical Filter with lens cleaning paper dampened with lens cleaner if necessary.

2. **Installation of the Filter Rubber**

(1) Install the Filter Rubber on the Optical Filter with the ridge side facing toward the Optical Filter.
Note:
Make sure that no dust gets on the Filter Rubber.

3. **Installation of the CCD C.B.A.**

(1) Place the CCD Surface Plate so that Holes (A) are aligned with Holes (B) on the CCD F.P.C.
(2) Carefully install the CCD onto the CCD F.P.C. by soldering.
Note:
Do not apply heat to the CCD directly when soldering. Keep soldering time to a minimum to prevent damage to the CCD.
Install the CCD and CCD Surface Plate so that there are no gaps between them.
When installing, do not touch the CCD window surface and make sure that no dust gets on the CCD. Clean the CCD window surface with lens cleaning paper dampened with lens cleaner if necessary.
(3) Install the CCD C.B.A. to the Lens Unit. Then, secure 2 Screws (S-1) while keeping the CCD C.B.A. pressed toward the upper right corner.

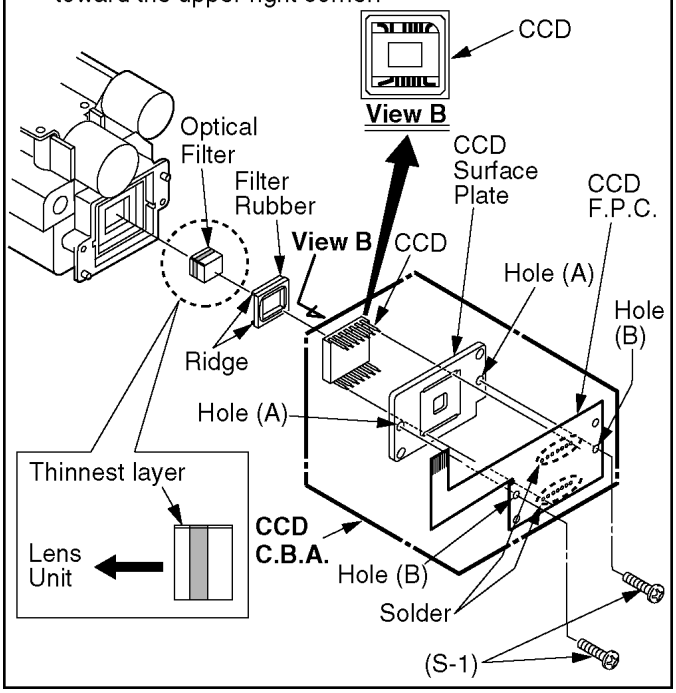


Fig. D11-2

6.1.8. LENS PORTION B

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Lens Piece Unit	D12-1	2(S-1), 2(L-1)
②	MF VR Unit	D12-1	(S-2)
③	Focus Motor Unit	D12-2	2(S-3), Unsolder
④	Zoom Motor Unit	D12-2	(S-4), 2(S-5), Unsolder

6.1.8.1. Lens Piece Unit, MF VR Unit

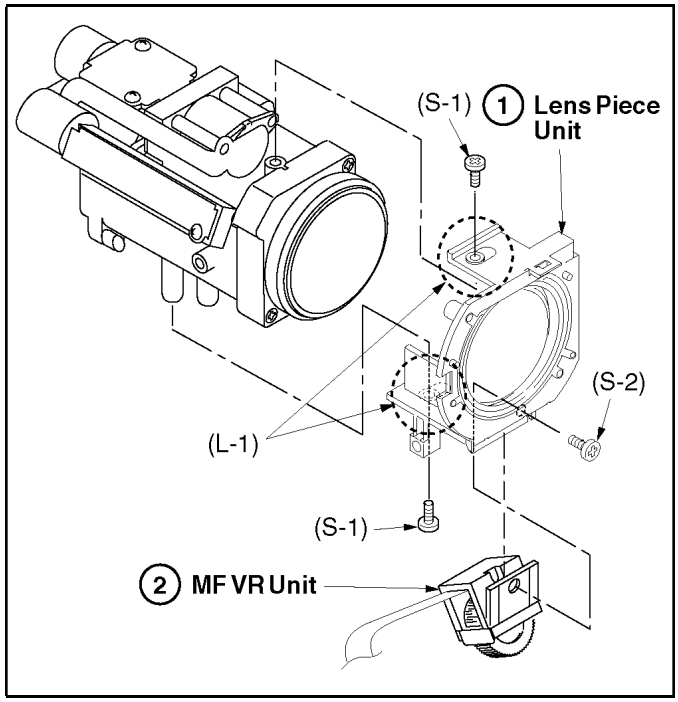
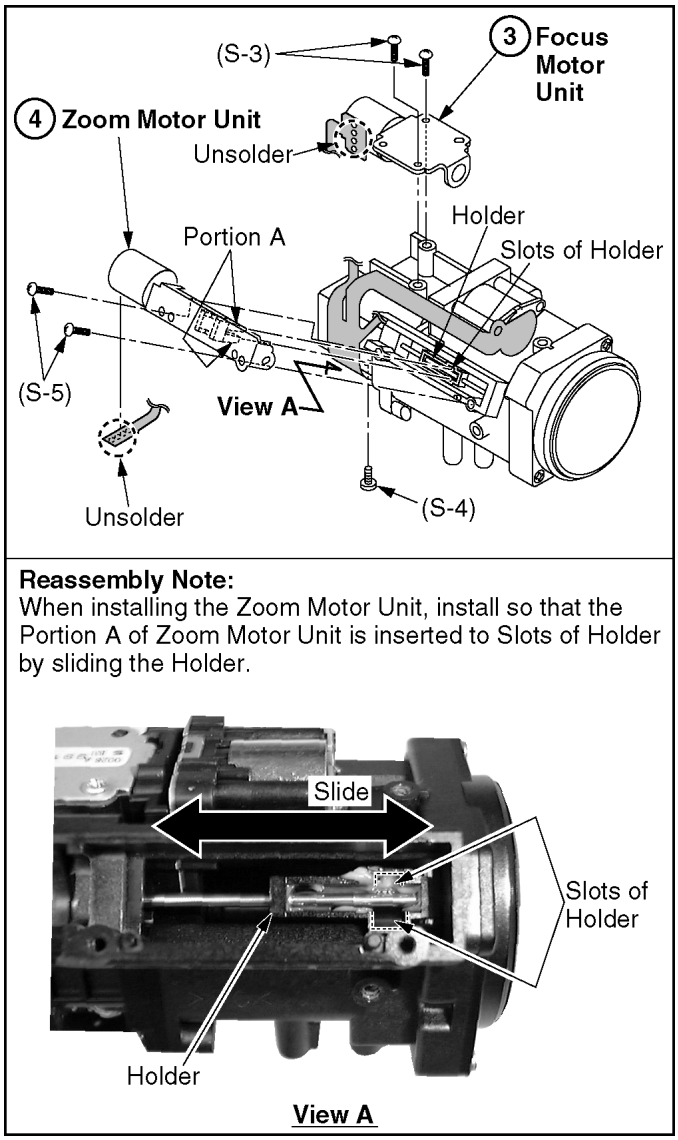


Fig. D12-1

6.1.8.2. Focus Motor Unit, Zoom Motor Unit



Reassembly Note:
When installing the Zoom Motor Unit, install so that the Portion A of Zoom Motor Unit is inserted to Slots of Holder by sliding the Holder.

Fig. D12-2

6.1.9. SIDE CASE R PORTION

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	MIC Case Unit	D13-1	2(S-1), (L-1), 2(L-2), R Hinge
②	Top Operation Unit	D13-2	(S-2), (L-3)
③	Battery Catcher Unit	D13-3	(S-3), Buckup Cover, Battery

6.1.9.1. MIC Case Unit

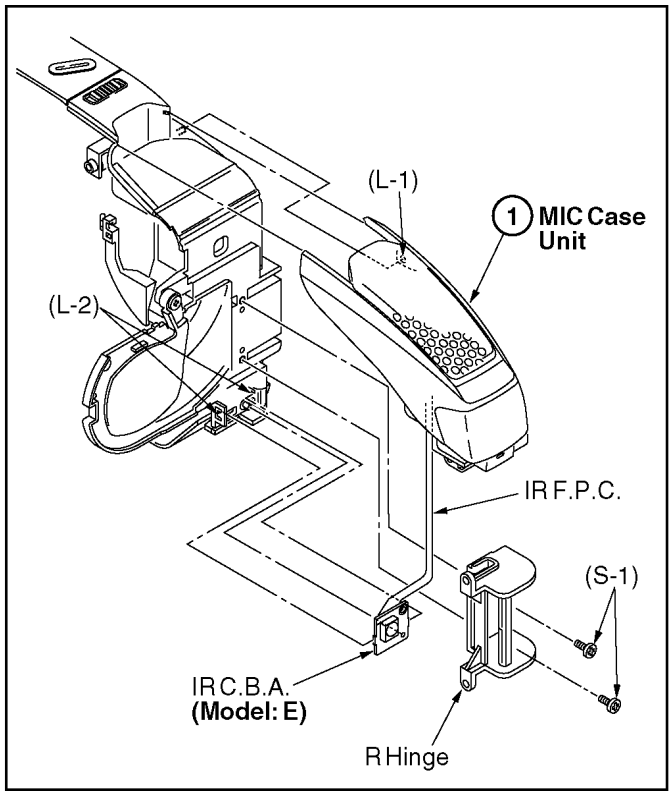
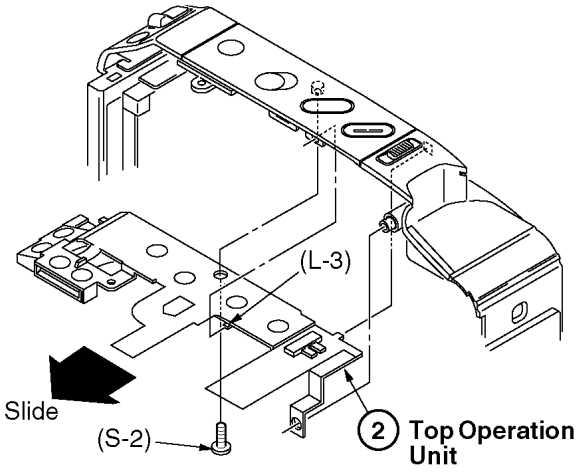


Fig. D13-1

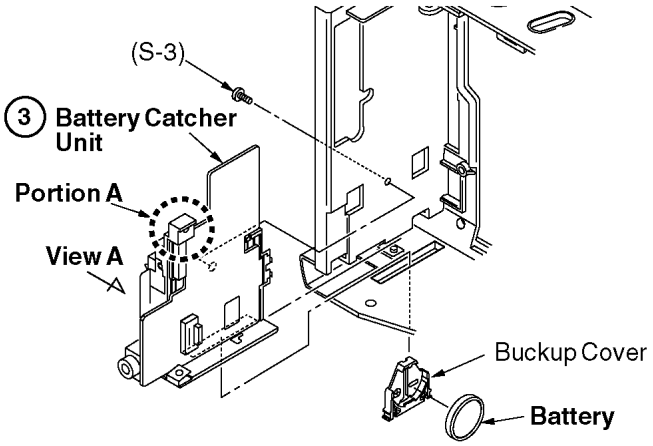
6.1.9.2. Top Operation Unit



Note:
(1) To remove the Top Operation Unit, release the Locking Tab (L-3).
(2) Remove the Top Operation Unit while sliding it as indicated by the arrow.

Fig. D13-2

6.1.9.3. Battery Catcher Unit



WARNING:
DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

CAUTION:
Be careful not to break Portion A when removing or installing the Battery Catcher Unit.

Note:
(1) To remove the Battery Catcher Unit, first remove the Backup Cover with the Battery.
(2) Remove Screw (S-3).
(3) Slide the Battery Catcher Unit out by pushing Portion B and C as indicated by the arrow.

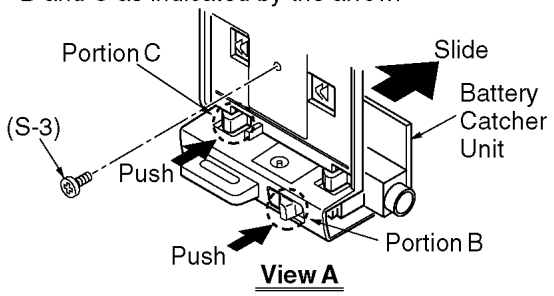


Fig. D13-3

6.1.10. LAMP PORTION (Model: A, C, D, E)

DANGER:
When replacing the Lamp, use only Lamp (Part No. VLLW0015) supplied by Panasonic to reduce the risk of fire.
Use a cloth or tissue when handling the Lamp as finger oils will decrease the Lamp life.
To prevent possible burn hazard, remove the Light Cover and allow the Lamp to cool before replacing.

Note:

1. Lamp is supplied as a Lamp Kit only (Kit No. VULS0001) which contains Lamp, Cushions, and Explanation Sheet.
2. For more details of the Lamp replacement, refer to the Explanation Sheet in the Lamp Kit (VULS0001).

STEP /LOC. No.	PART	Fig. No.	REMOVE
①	Light Cover	D14-1	2(L-1)
②	Lamp	D14-2	----------

6.1.10.1. Light Cover

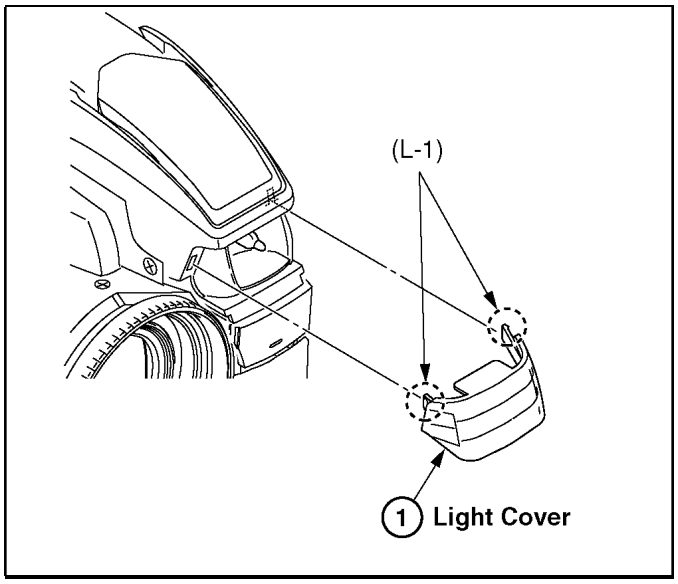
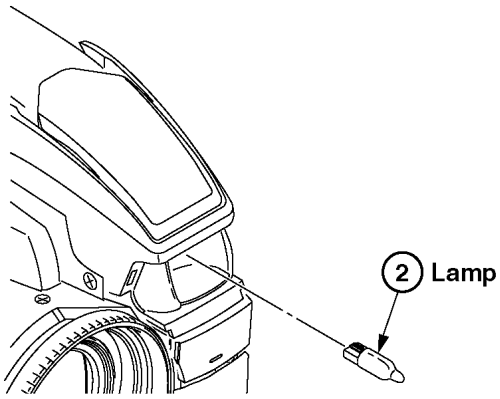


Fig. D14-1

6.1.10.2. Lamp



Note:
1) When removing the Lamp, use Needle-nose Pliers etc.
2) When installing the Lamp, do not touch the surface of Lamp directly. Use a clean cloth or tissue to install the Lamp.

Fig. D14-2

6.2. MECHANISM SECTION

6.2.1. Disassembly Method

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly and alignments procedures in STOP Position except disassembly and alignment procedures which have the special Notes.

STEP LOC. No.	Prior Step (s)	Part	Fig. No.	Remove
①	-	Cassette Up Unit	DM3-1,2	2(S-1), 2(L-1)
②	-	Cylinder Ass'y	DM4-1	3(S-1), Hooking Portion
③	2	Upper Cylinder Unit	DM4-2,3	(S-1)
④	2	Cylinder/Head Amp F.P.C.	DM4-2,3	FP3501
⑤	2	Bulge Chip	DM4-2,3	(S-2)
⑥	-	P.C.B. Angle	DM5	(S-1)
⑦	-	Mechanism F.P.C. Unit	DM6-1,2	4(S-1), Hooking Portion, double-sided adhesive tape, Unsolder Gear Alignment (x1)
⑧	1,9	Tension Unit	DM7-1,2	(C-1), Hooking Portion
⑨	1,8	Reel Table Unit	DM7-1,2	(C-2), (W-1)
⑩	1,8,9	Rev Clutch	DM8	(C-1)
⑪	1	Take Gear	DM9-1,2	(L-1)
⑫	1,11	Rev Brake Arm Unit	DM9-1,2	(C-1), Hooking Portion
⑬	-	A/C Head Unit	DM10	(S-1), Unsolder
⑭	-	Capstan Belt	DM11	-
⑮	6,13,14	Capstan Unit	DM12	2(S-1), (S-2)
⑯	1,6,7,11,12,14	Idler Arm Unit	DM13	(C-1)
⑰	2	Mechanism Support Angle	DM14	(S-1)
⑱	1	Reduction Gear B	DM15	(C-1)
⑲	-	Reduction Gear A	DM16	(C-1)
⑳	1,18	Reduction Gear Unit	DM16	2(S-1)
㉑	1	Pinch Arm Unit	DM17-1,2	(C-1)
㉒	1	Opener	DM17-1,2	(S-1)
㉓	1,11,21,22	P5 Arm Unit	DM17-1,2	Hooking Portion
㉔	1,17	Takeup Post Unit	DM18-1,2	(S-1)
㉕	1	Supply Post Unit	DM18-1,2	(S-2)
㉖	-	Impedance Roller Unit	DM19-1,2	(C-1)
㉗	1,2,13,24,25	Loading Base Unit	DM19-1,2	4(S-1)
㉘	1,2,8,9,13,24,25,27	Takeup Loading Arm Unit	DM20	- Gear Alignment (x1)
㉙	1,2,8,9,13,24,25,27	Supply Loading Arm Unit	DM21-1,2,3	- Gear Alignment (x2)
㉚	8,9,19	Loading Motor Unit	DM22	2(S-1)
㉛	1,2,8,9,10,18,19,20,24,25,27,29,30	Main Cam Unit	DM22	-
㉜	1,2,8,9,10,18,19,20,24,25,27,29,30,31	Pinch Toggle	DM22	-

A B C D E

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(S-1)=3 Screws (S-1), 3(W-1)=3 Washers (W-1), (C-1)=Cut Washer (C-1), 2(L-1) =2 Looking Tabs (L-1)

CAUTION:

a. Use a wrist strap to provide ESD protection while disassembling or assembling.
b. Removed Cut Washer is not reusable. If removed, install a new one.
Following Cut Washers are to be used:

Ref. No.	Part No.
409	VMXW0217
411	VMXW0213
419	VMX2026

6.2.2. Inner Parts Location

Note: BOX indicates alignment (Gear alignment or Tape Interchangeability adjustment) required when a part is replaced.

6.2.2.1. TOP VIEW

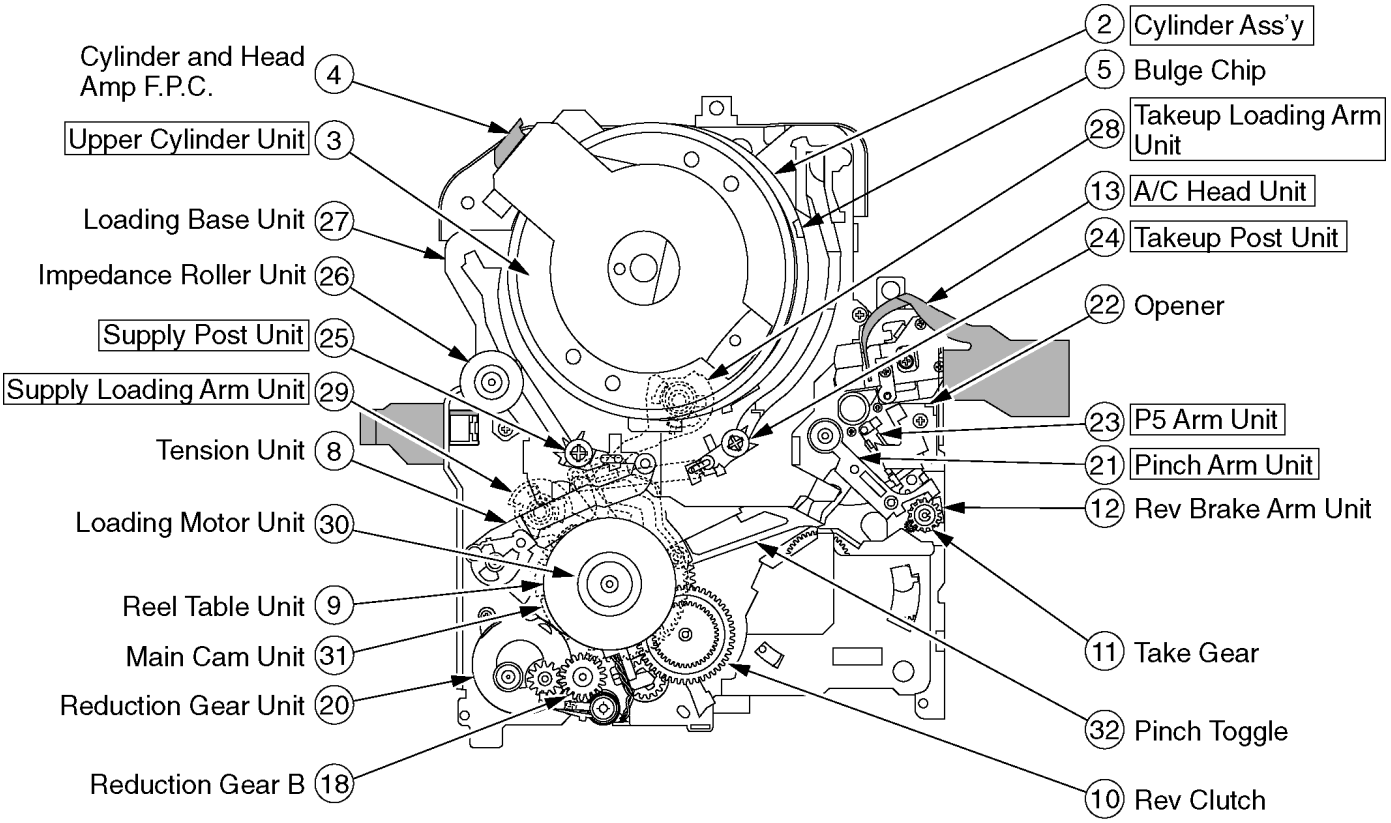


Fig. DM1-1

6.2.2.2. BOTTOM VIEW

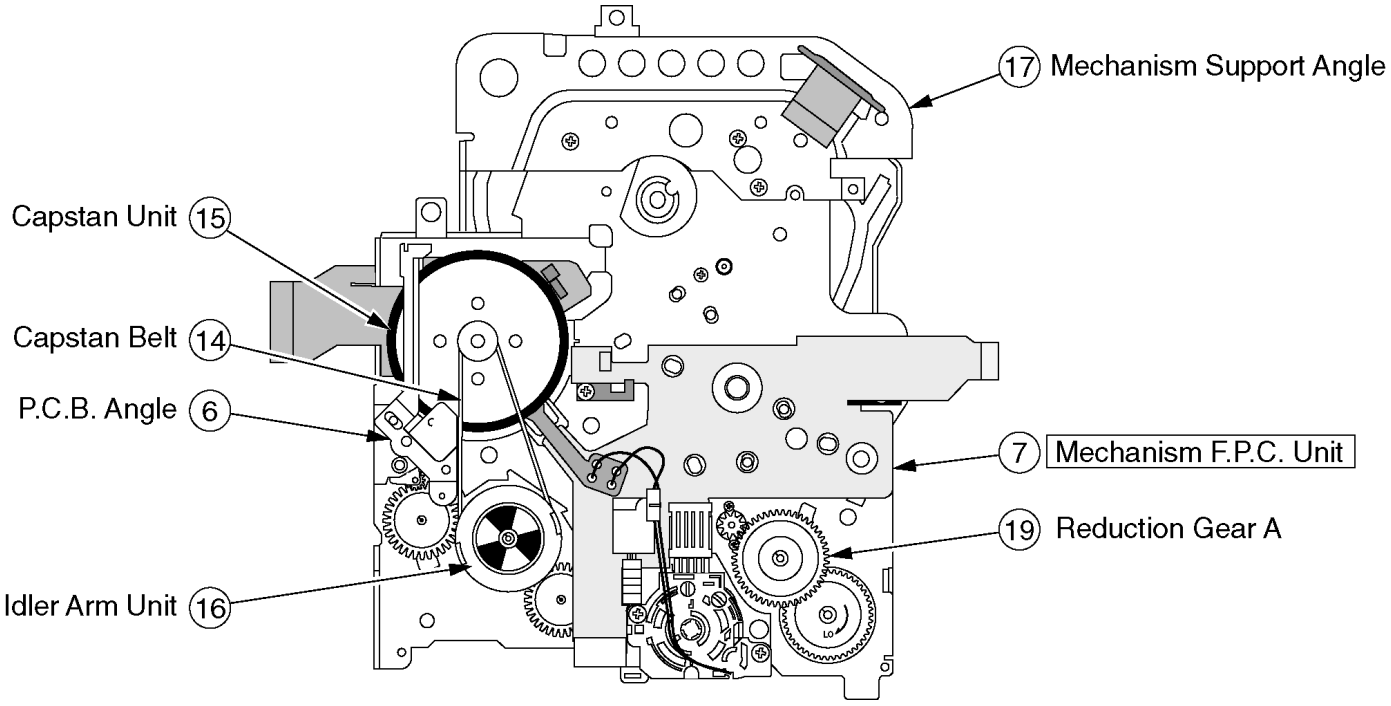


Fig. DM1-2

6.2.3. STOP Position Confirmation

Check the following alignment points to confirm that the Mechanism is in STOP Position from the Top and Bottom View.

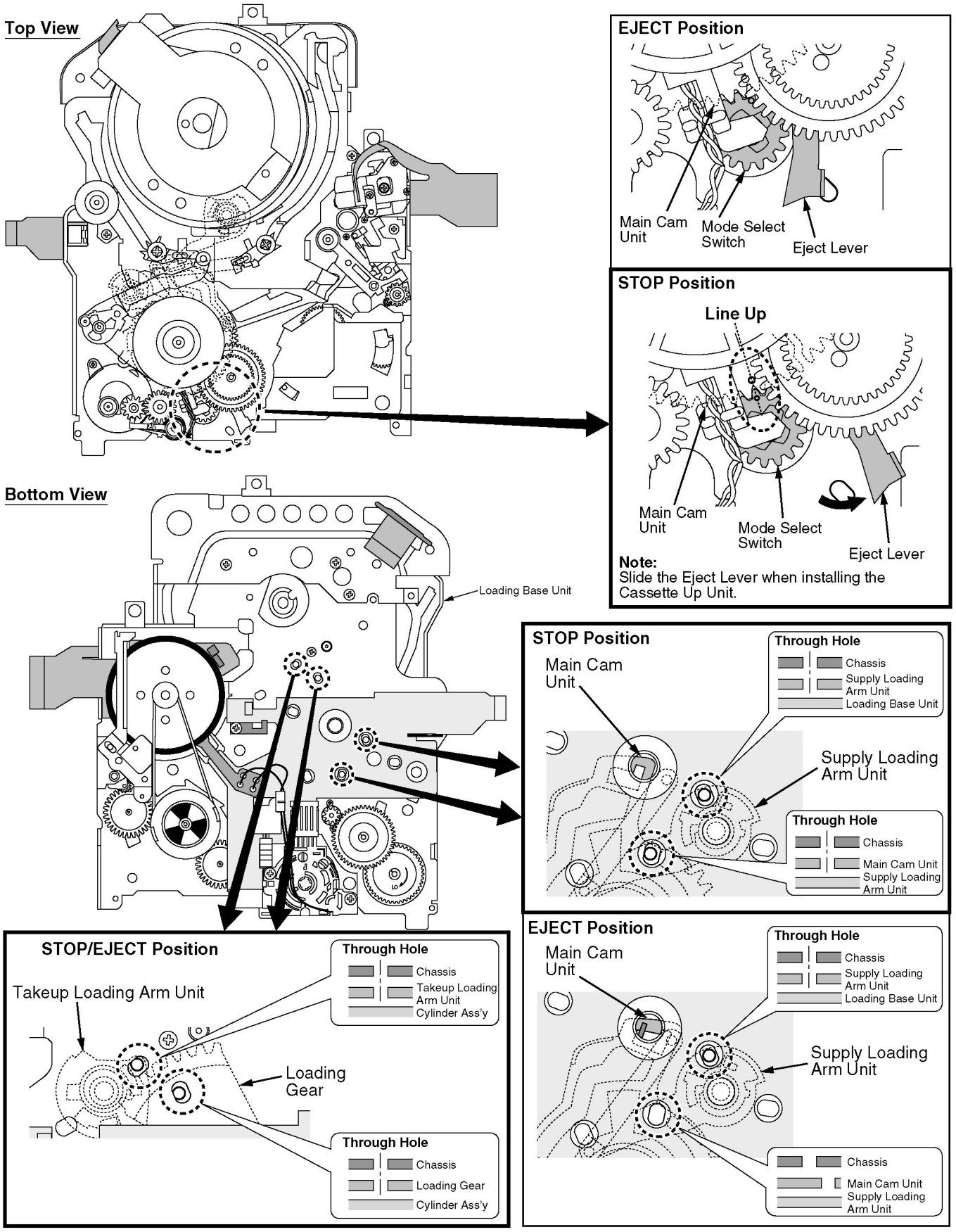
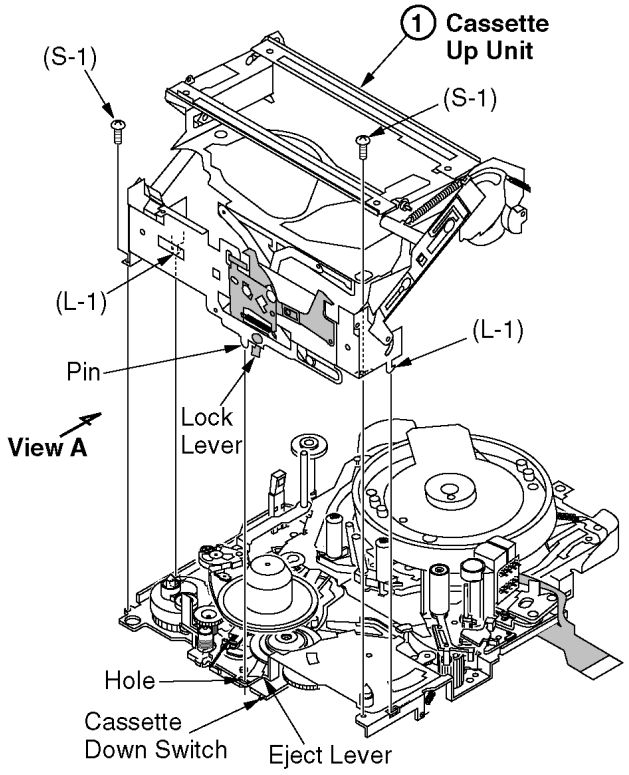


Fig. DM2

Perform all disassembly and alignments procedures in STOP Position except disassembly and alignment procedures which have the special Notes.

6.2.4. Cassette Up Unit



Note:
The replacement Cassette Up Unit is supplied with a Lock Screw installed as shown below.
Make sure to remove this Lock Screw when replacing the Cassette Up Unit.

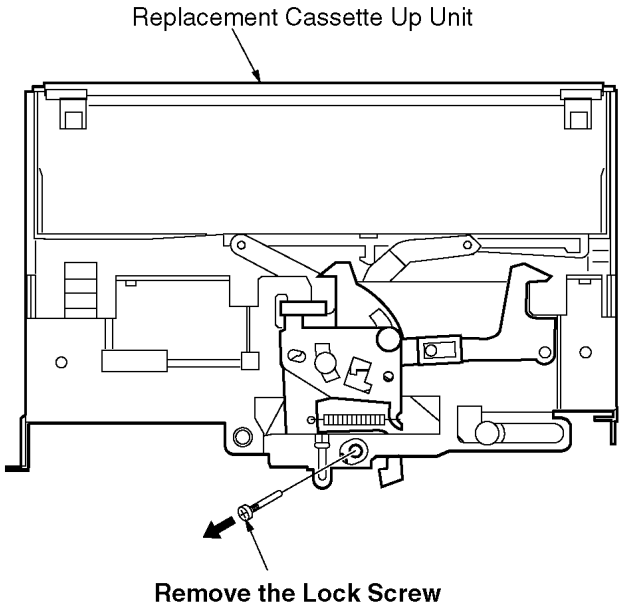


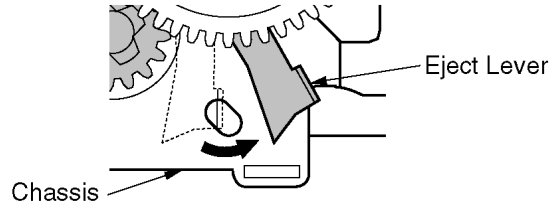
Fig. DM3-1

Reassembly Note:

1. **Installation of the Cassette Up Unit**

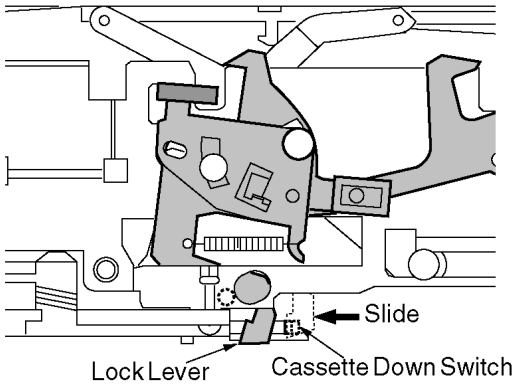
Installation is possible except when the Mechanism is in Eject Position.

(1) Before installing the Cassette Up Unit, confirm that the Eject Lever is slid as shown.



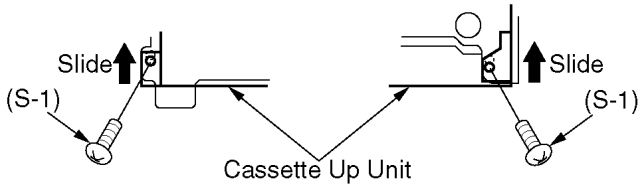
Top View

(2) Slide the Lock Lever. (Otherwise, the Lock Lever may damage the Cassette Down Switch when installing the Cassette Up Unit.)



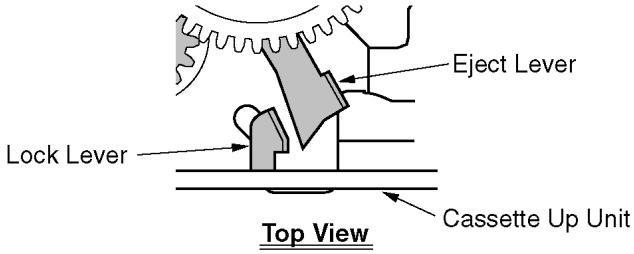
View A

(3) Then, Install the Cassette Up Unit while setting 2 Locking Tabs (L-1). Next, insert Pin into Hole on the Chassis.
(4) Slide the Cassette Up Unit as far as possible as indicated by the arrow. Then, tighten 2 Screws (S-1).



Top View

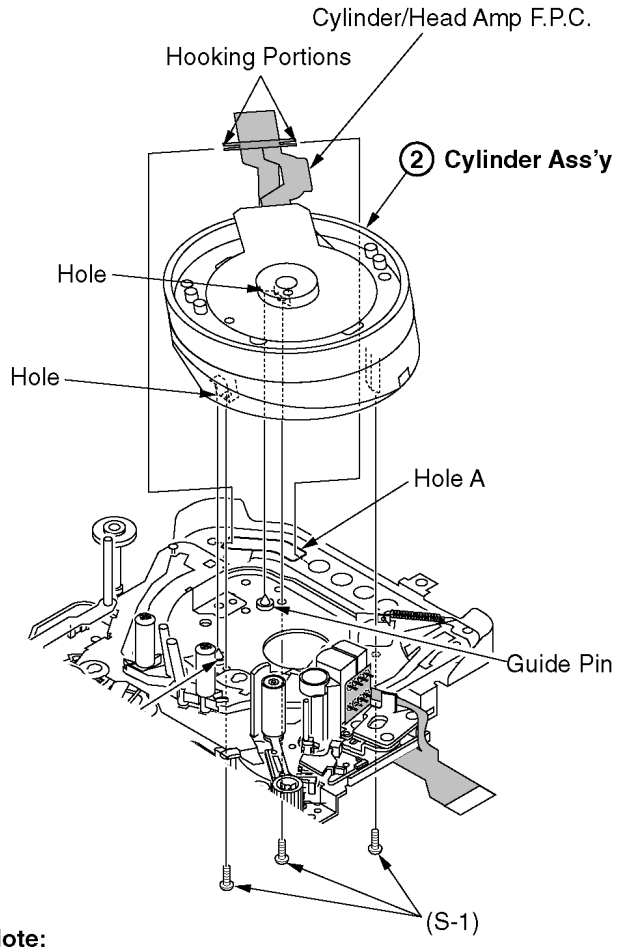
(5) After installing the Cassette Up Unit, confirm that the Lock Lever is on the left of the Eject Lever as shown.



Top View

Fig. DM3-2

6.2.5. Cylinder Ass'y



Note:

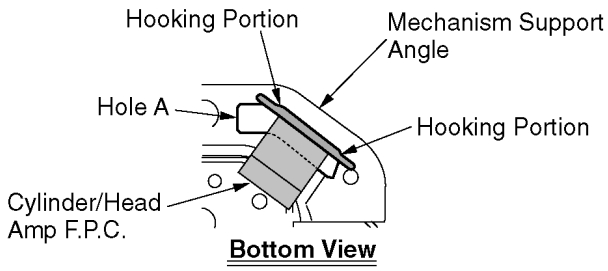
1. Use extreme care when removing the Cylinder Ass'y. Do not touch the Video Heads during servicing.
2. **Removal of the Cylinder Ass'y**

(1) Unhook the Cylinder/Head Amp F.P.C. while lifting up the Cylinder Ass'y slightly and remove it from the Hole A.

Reassembly Note:

1. Use extreme care when replacing the Cylinder Ass'y. Do not touch the Video Heads during servicing.
2. **Installation of the Cylinder Ass'y**

(1) Insert the Cylinder/Head Amp F.P.C. to Hole A first.
(2) Install the Cylinder Ass'y so that 2 Holes on the Lower Cylinder Unit surface fit over the 2 Guide Pins on the Chassis. Then, tighten 3 Screws (S-1).
(3) Hook the Cylinder/Head Amp F.P.C. as shown.



3. **Adjustment of the Cylinder Ass'y**

(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

Fig. DM4-1-1

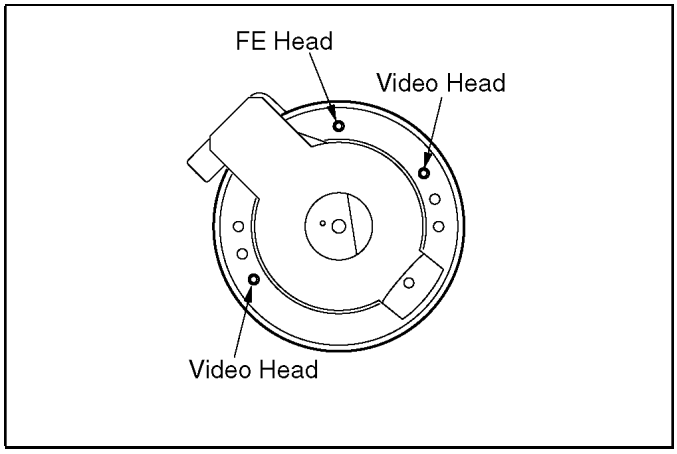
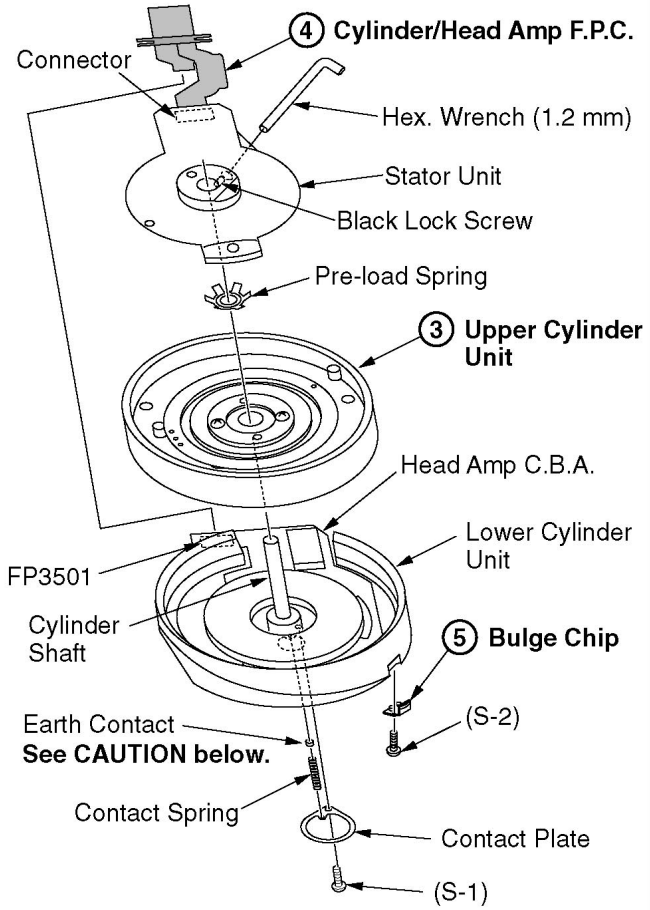


Fig. DM4-1-2

6.2.6. Upper Cylinder Unit, Cylinder/Head Amp F.P.C., Bugle Chip

(Cylinder Ass'y)



Note:

1. Use extreme care when removing the Upper Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Removal of the Upper Cylinder Unit**

(1) Disconnect the Connector FP3501 on the Head Amp C.B.A.
(2) Remove Screw (S-1), then remove the Contact Plate, Contact Spring, and Earth Contact in the order.

CAUTION:
Do not remove the Upper Cylinder Unit before removing the Earth Contact.

(3) Loosen the Black Lock Screw on the Stator Unit with a Hex. wrench (1.2 mm) and pull up on the Stator Unit.
(4) Remove the Pre-load Spring.
(5) Then, remove the Upper Cylinder Unit.

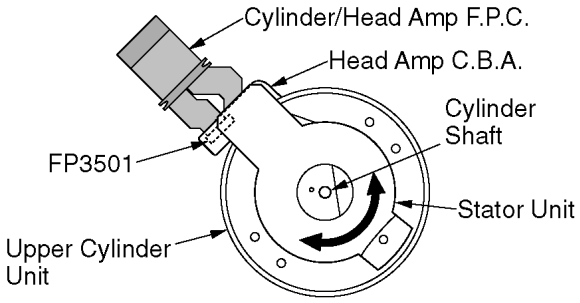
Fig. DM4-2

Reassembly Note:

1. Use extreme care when replacing the Upper Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Installation of the Upper Cylinder Unit**

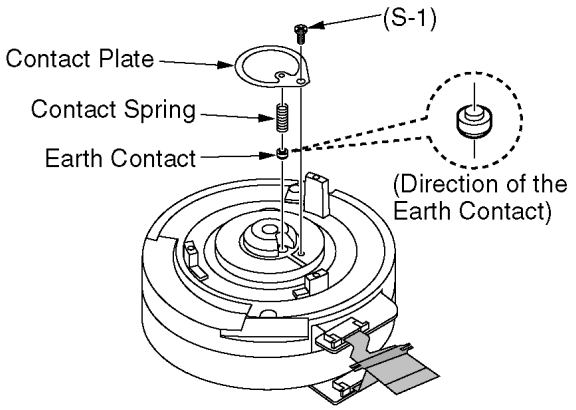
(1)
CAUTION:
Confirm that the Earth Contact is not in the Lower Cylinder Unit.

(2) Install the Upper Cylinder Unit to the Lower Cylinder Unit.
(3) Confirm the position of the Pre-load Spring, and install it to the Cylinder Shaft.
(4) Install the Stator Unit to the Cylinder Shaft. Rotate the Stator Unit to be positioned as shown.



Top View

(5) Connect the Cylinder/Head Amp F.P.C. with the Connector FP3501 on the Head Amp C.B.A.
(6) Tighten the Black Lock Screw (700 g/cm) on the Stator Unit with a Hex. wrench (1.2 mm) while lightly grasping (700 g±300 g) the top and bottom of the Cylinder Ass'y.
(7) Install the Earth Contact, Contact Spring, and Contact Plate in the order. Then, tighten Screw (S-1).



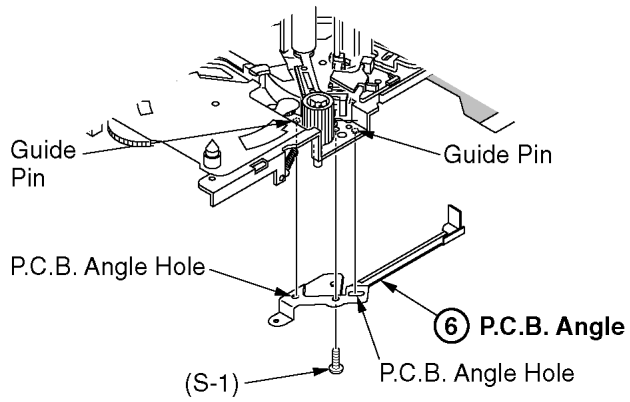
Bottom View

3. **Adjustment of the Upper Cylinder Unit**

(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

Fig. DM4-3

6.2.7. P.C.B. Angle



Reassembly Note:

1. **Installation of the P.C.B. Angle**

(1) Install the P.C.B. Angle so that the 2 P.C.B. Angle Holes fit over the 2 Guide Pins on the Chassis.
Work carefully so as not to damage the A/C Head/Capstan F.P.C.

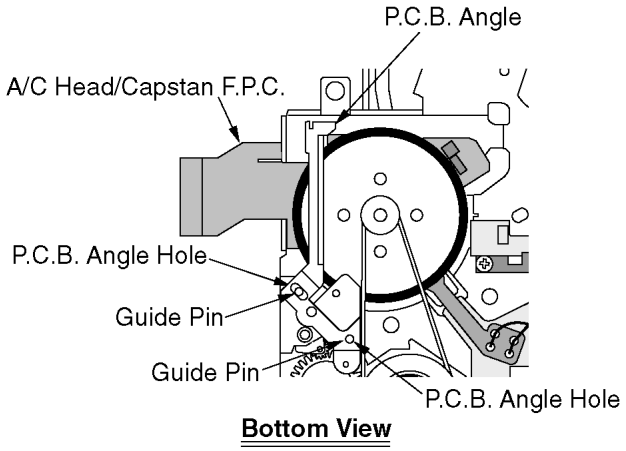
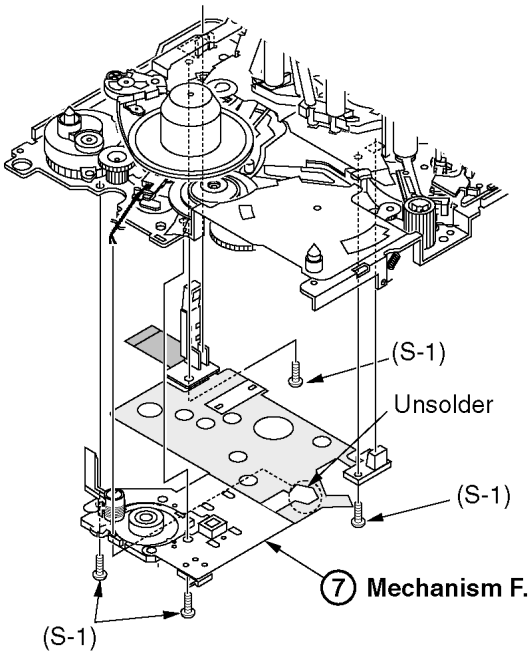
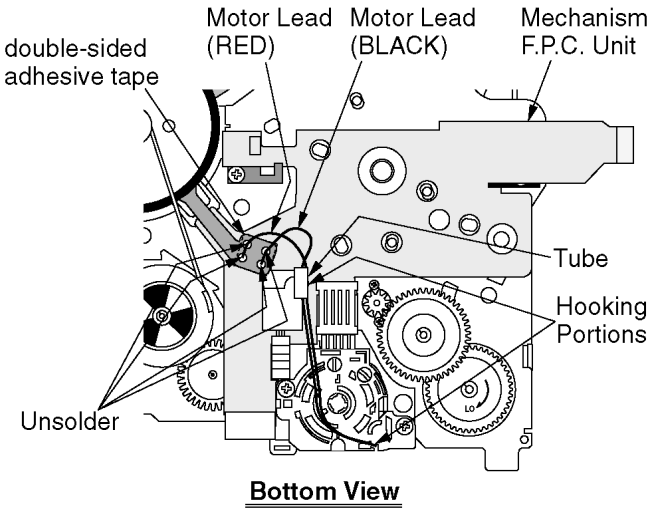


Fig. DM5

6.2.8. Mechanism F.P.C Unit





Bottom View

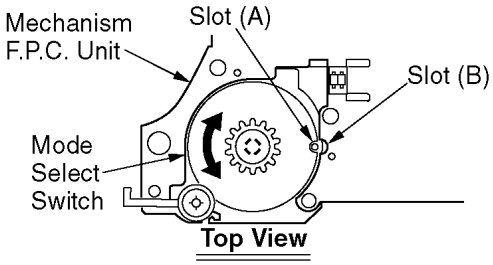
Note:
Unsolder under 320℃ within 3 seconds.

Fig. DM6-1

Reassembly Note:

1. **Gear Alignment**
   - **The Mode Select Switch and the Main Cam Unit**

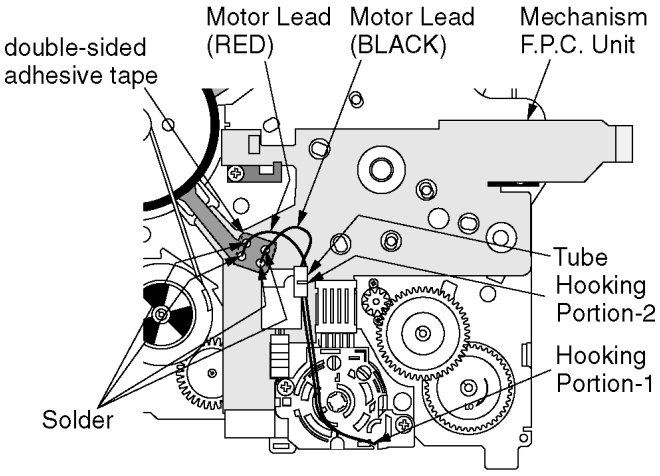
(1) Place the Mechanism in the **STOP Position** by rotating the Gear of Reduction Gear Unit.
(2) Before installing the Mechanism F.P.C. Unit, rotate the Mode Select Switch of Mechanism F.P.C. Unit so that Slot (A) is aligned with Slot (B).



Top View

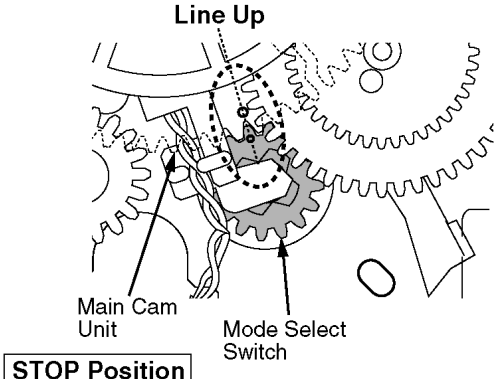
2. **Installation of the Mechanism F.P.C. Unit**

(1) Install the Mechanism F.P.C. Unit to the bottom of the Chassis. Then, tighten 4 Screws (S-1).
(2) Hook the Motor Leads to Hooking Portion-1.
(3) Pass the tube through the Motor Leads.
(4) Solder the Motor Leads as shown.
Note: Solder under 320 ℃ within 3 seconds.
(5) Hook the Motor Leads and the tube to Hooking Portion-2 together.
(6) Confirm that the Motor Leads are set correctly on the Mechanism F.P.C. Unit as shown.



Bottom View

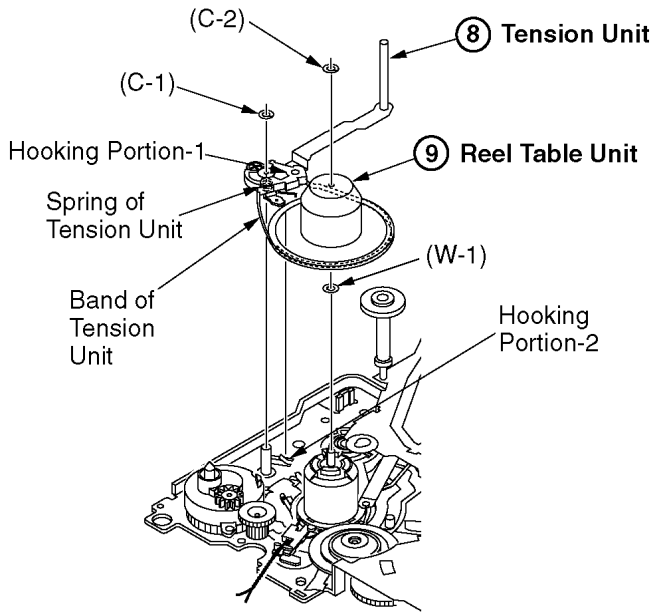
(7) Confirm that the Mode Select Switch is in STOP Position from the Top side.



Top View

Fig. DM6-2

6.2.9. Tension Unit, Reel Table Unit



1. **Removal of the Tension Unit and the Reel Table Unit**

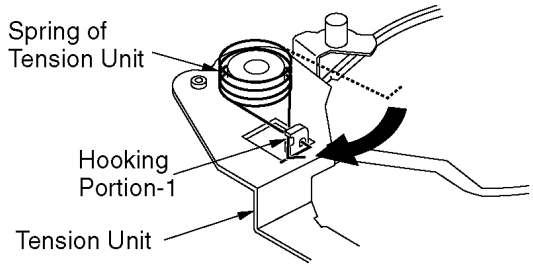
(1) Place the Mechanism in the **Fully-loaded Position**.
(2) Remove Cut Washers (C-1), and (C-2).
(3) Then, remove both the Tension Unit and the Reel Table Unit.

Fig. DM7-1

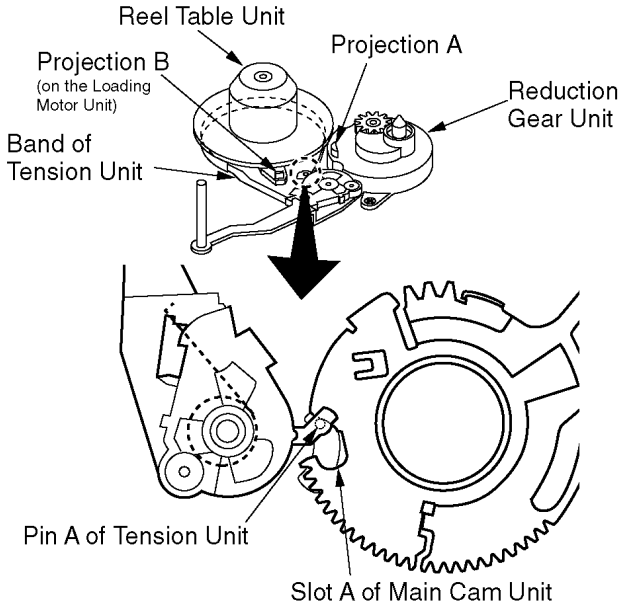
Reassembly Note:

1. **Installation of the Reel Table Unit and the Tension Unit**

(1) Before installing the Reel Table Unit and the Tension Unit, place the Mechanism in the **Fully-loaded Position** by rotating the Gear of Reduction Gear Unit.
(2) Install Washer (W-1) onto the Loading Motor Unit first.
(3) Hook the Spring of Tension Unit to the Tension Unit as shown.



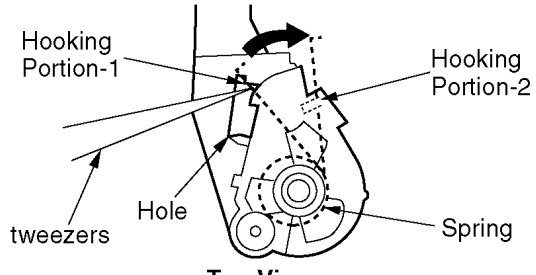
(4) Hook the Band of Tension Unit to the groove of Reel Table Unit.
(5) Install both the Reel Table Unit and Tension Unit to the Chassis so that the Pin A of Tension Unit is set into Slot A of the Main Cam Unit. Confirm that the Band of Tension Unit keeps off Projection A and B.



Fully-loaded (Play) Position

Top View

(5) Unhook the Spring of Tension Unit from Hooking Portion-1 with tweezers etc. inserted through Hole to let it hook to Hooking Portion-2 on the chassis.



Top View

(6) Install Cut Washer (C-2), and (C-1).

Fig. DM7-2

6.2.10. Rev Clutch

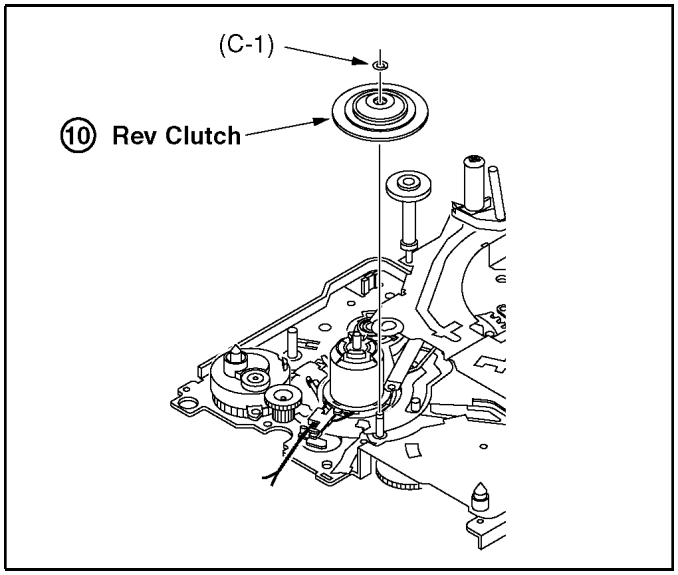
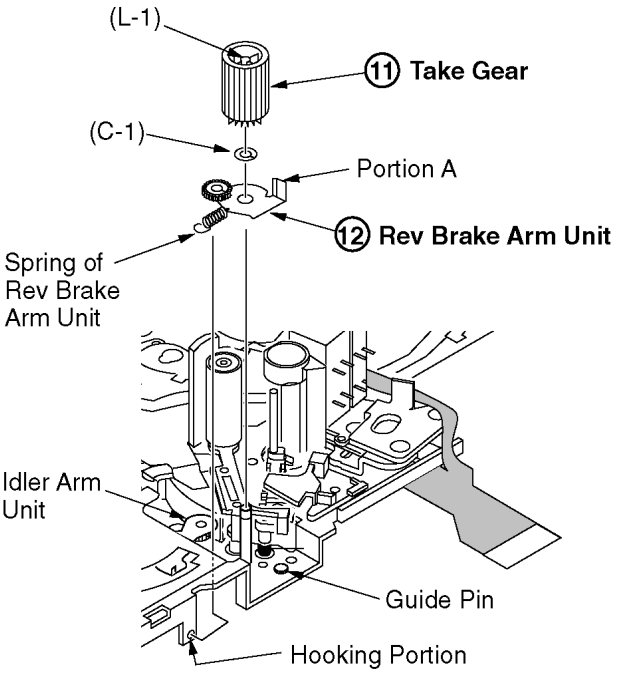


Fig. DM8

6.2.11. Take Gear, Rev Brake Arm Unit



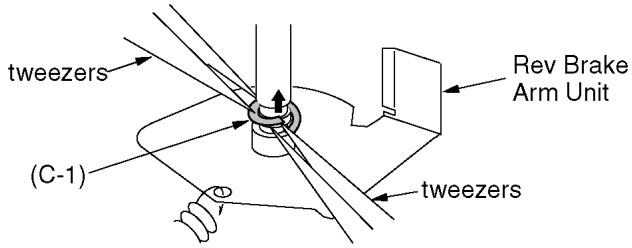
Note:

1. **Removal of the Rev Brake Arm Unit**

(1) Before removing, move the Idler Arm Unit aside.

(2) Remove Cut Washer (C-1) with tweezers etc.

Tips on removal of the Cut Washer (C-1):
Push up one side while pushing the other side of Cut Washer.



(3) Remove the Rev Brake Arm Unit after unhooking the Spring of Rev Brake Arm Unit.

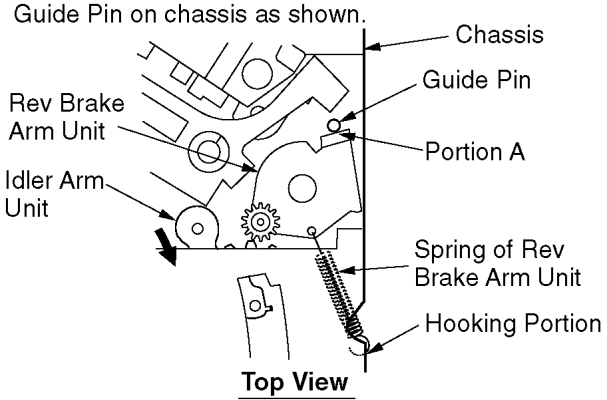
Fig. DM9-1

Reassembly Note:

1. **Installation of the Rev Brake Arm Unit**

(1) Before installing the Rev Brake Arm Unit, move the Idler Arm Unit aside as indicated by the arrow.

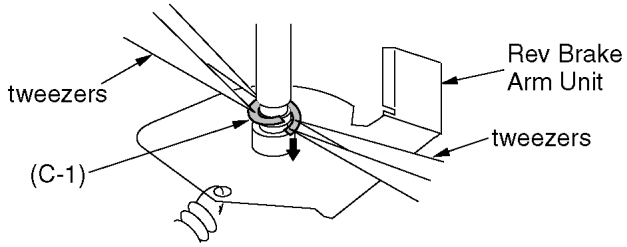
(2) Hook the Spring of Rev Brake Arm Unit to the Hooking Portion. After hooking the Spring, confirm that Portion A of the Rev Brake Arm Unit does not pass over the Guide Pin on chassis as shown.



Top View

(3) Install Cut Washer (C-1) with tweezers.

Tips on installation of the Cut Washer (C-1):
Push down one side while pushing the other side of Cut Washer.

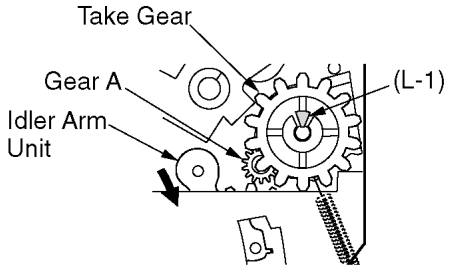


(4) After installing, confirm that Cut Washer (C-1) can be rotated.

2. **Installation of the Take Gear**

(1) Before installing the Take Gear, move the Idler Arm Unit aside as indicated by the arrow.

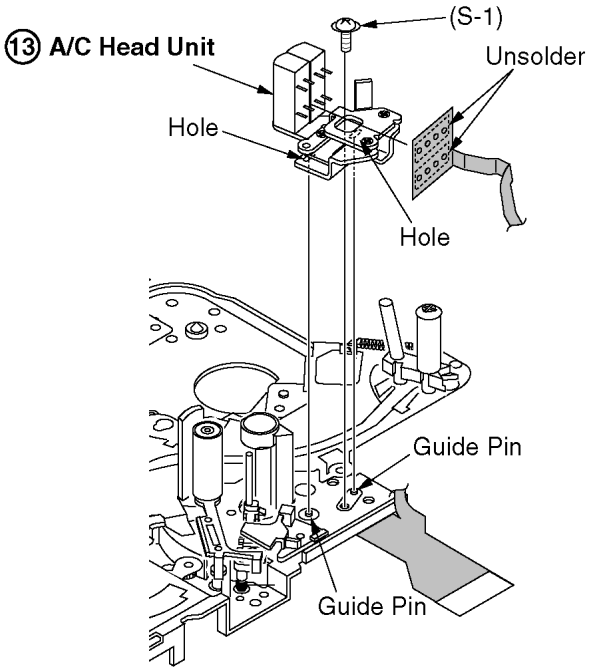
(2) Install the Take Gear while rotating so it engages with Gear A so as not to cause damage.
Then, confirm that Locking Tab (L-1) is set.
Note: Use extreme care when installing the Take Gear. If Locking Tab (L-1) is broken, install a new Take Gear.



Top View

Fig. DM9-2

6.2.12. A/C Head Unit



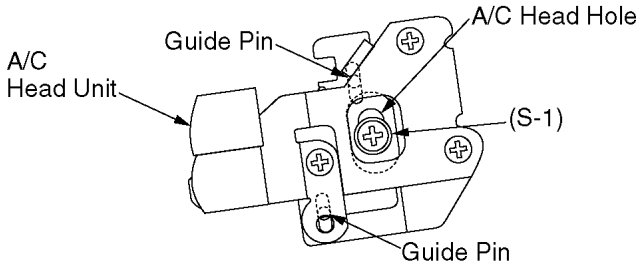
Note:
Unsolder under 320°C within 3 seconds.

Reassembly Note:

1. **Installation of the A/C Head Unit**

(1) Install A/C Head Unit so that 2 Guide Pins are in holes on the A/C Head Unit.

(2) Tighten Screw (S-1) (1.0 ~ 1.3 kgf•cm) in the approximate center of the hole.



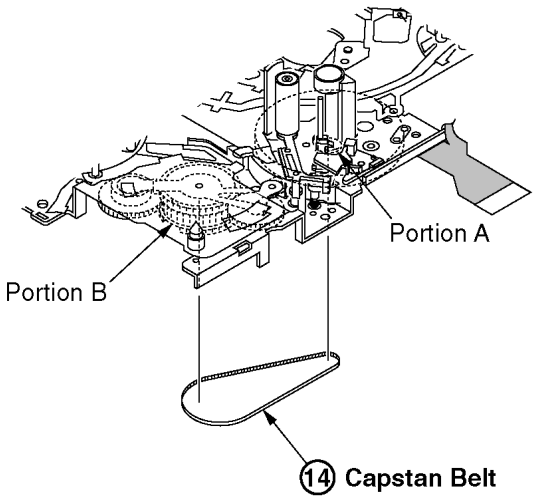
Top View

2. **Adjustment of the A/C Head Unit**

(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

Fig. DM10

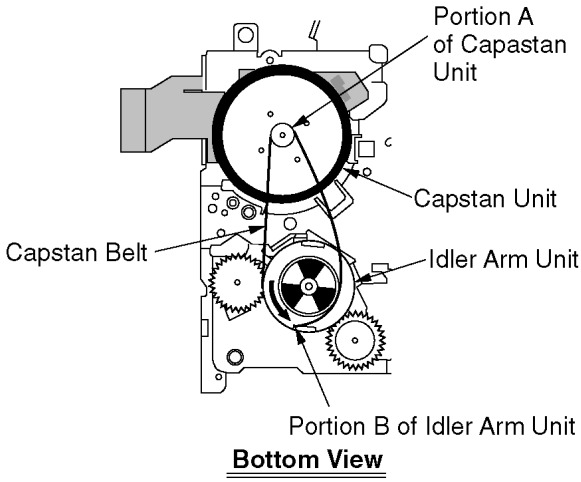
6.2.13. Capstan Belt



Reassembly Note:

1. **Tips on Installation of the Capstan Belt**

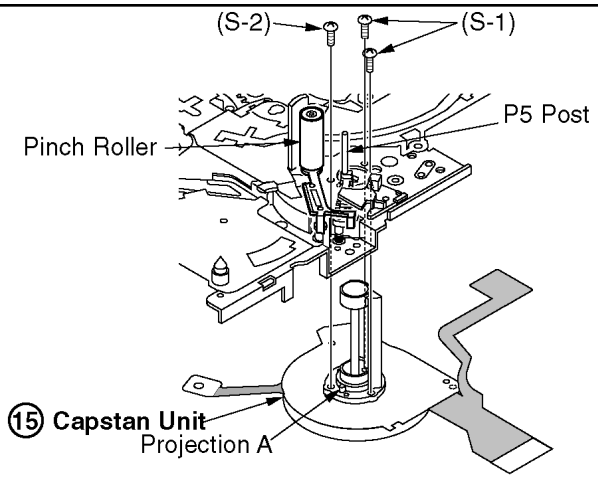
(1) Hook the Capstan Belt to Portion A of Capstan Unit at first as shown.
(2) Hook the Capstan Belt to Portion B of Idler Arm Unit.
(3) Rotate the Idler Arm Unit as indicated by the arrow (counterclockwise) and set it completely.

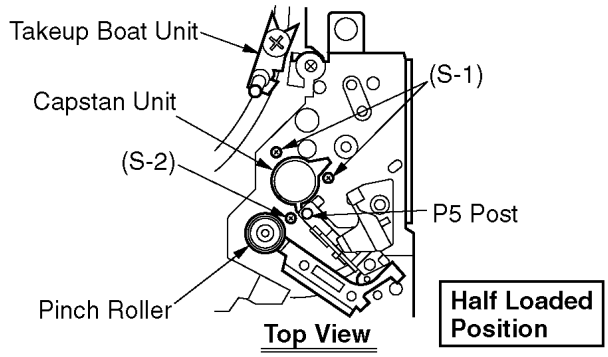


Bottom View

Fig. DM11

6.2.14. Capstan Unit





Top View

CAUTION:
Do not touch the P5 Post or the Pinch Roller.

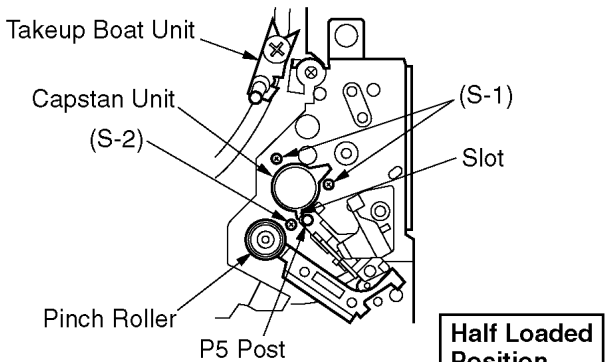
1. **Removal of the Capstan Unit**

(1) To remove, put the mechanism in the **half loaded position** to gain access to Screw (S-2) as shown by rotating the Gear of Reduction Gear Unit. Then, remove Screw (S-2).

Reassembly Note:

1. Since the Capstan Unit has already been adjusted at the factory, do not try to adjust the FG Head. The Capstan Unit is supplied as a complete assembly as a replacement part.
2. **Installation of the Capstan Unit**

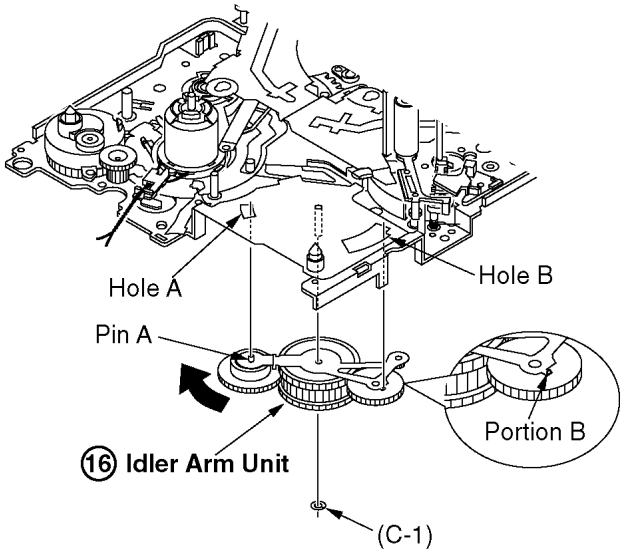
(1) Before installing the Capstan Unit, put the mechanism in the **half loaded position** to gain access to Screw (S-2) for installing by rotating the Gear of Reduction Gear Unit.
(2) Install the Capstan Unit to the Chassis so that Projection A fit in the Slot on the Chassis.
(3) Tighten 2 Screws (S-1). Then, tighten Screw (S-2).



Top View

Fig. DM12

6.2.15. Idle Arm Unit



1. **Removal of the Idler Arm Unit**

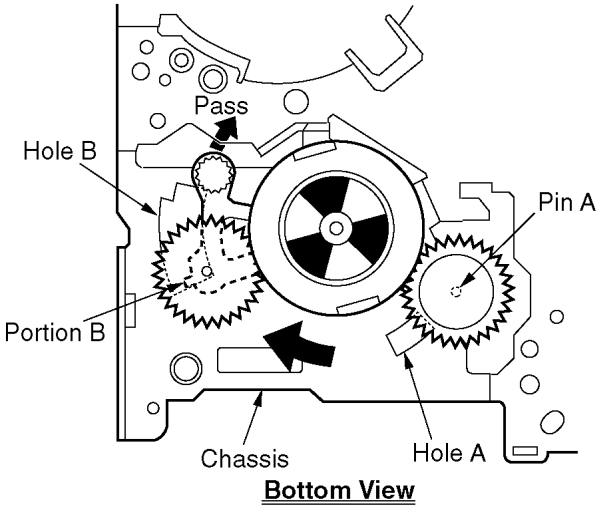
(1) To remove the Idler Arm Unit, pull the Idler Arm Unit slightly from the Chassis to release Pin A from Hole A. Then, remove the Idler Arm Unit while turning as indicated by the arrow.

Reassembly Note:

1. **Installation of the Idler Arm Unit**

(1) Set the Idler Arm Unit so that Portion B is in Hole B as shown.

(2) Turn the Idler Arm Unit slightly as indicated by arrow to set Pin A in Hole A.



(3) Install Cut Washer (C-1).

Fig. DM13

6.2.16. Mechanism Support Angle

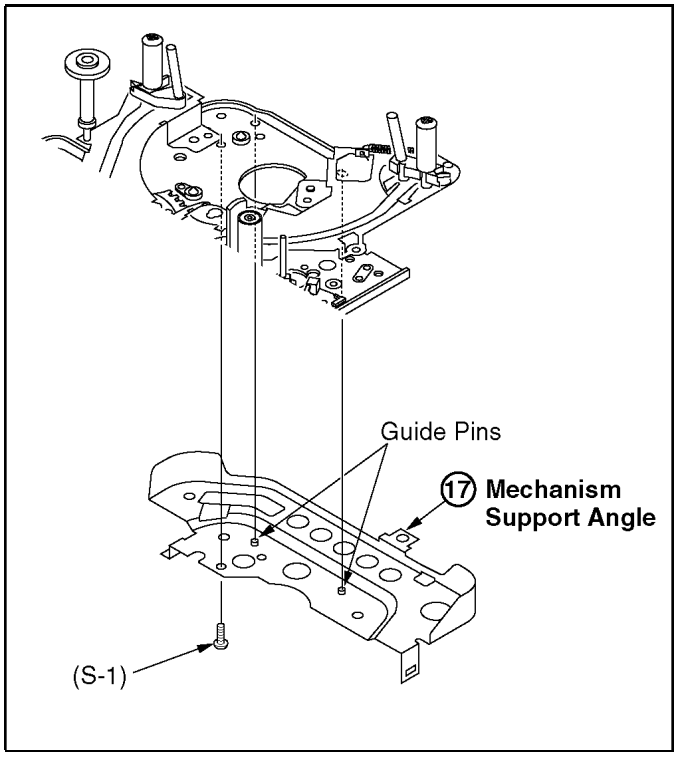
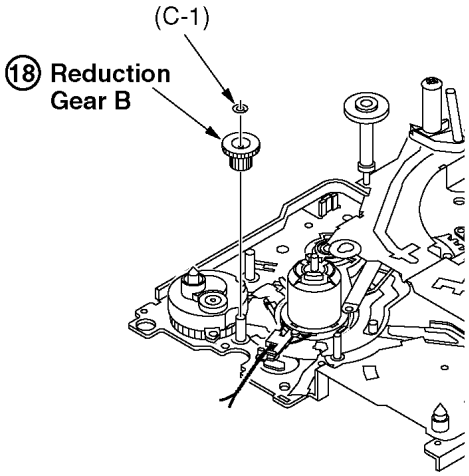


Fig. DM14

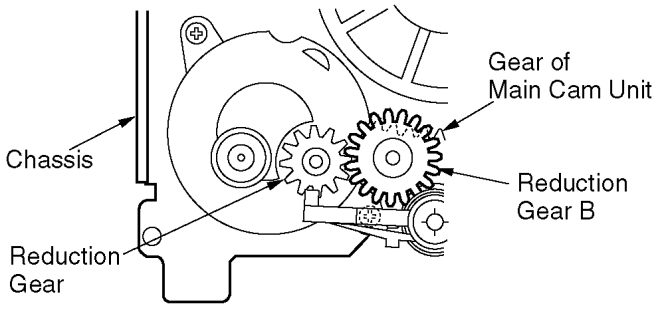
6.2.17. Reduction Gear B



Reassembly Note:

1. **Installation of the Reduction Gear B**

(1) Install the Reduction Gear B while rotating so it engages with the Gear of Main Cam Unit as shown.

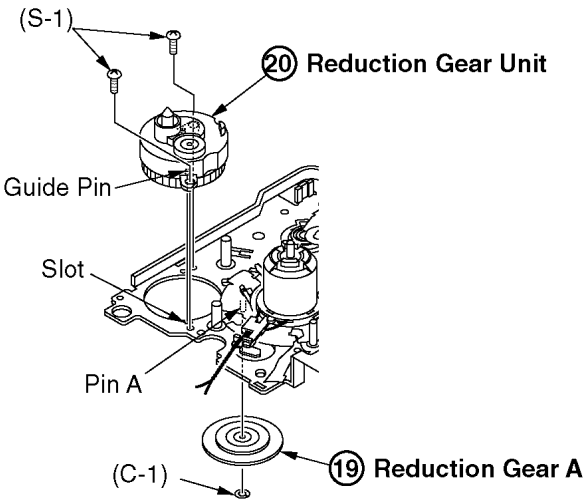


Top View

(2) Confirm that the Mechanism can be loaded or unloaded by rotating the Gear of Reduction Gear Unit.

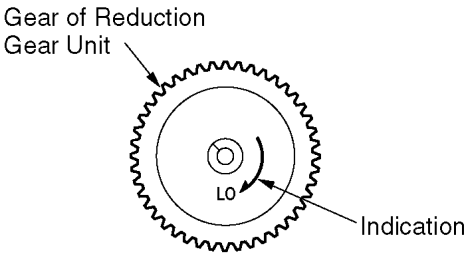
Fig. DM15

6.2.18. Reduction Gear A, Reduction Gear Unit



Indication on Gear of Reduction Gear Unit

The arrow indicated on the Gear of Reduction Gear Unit shows the direction to load.



Bottom View

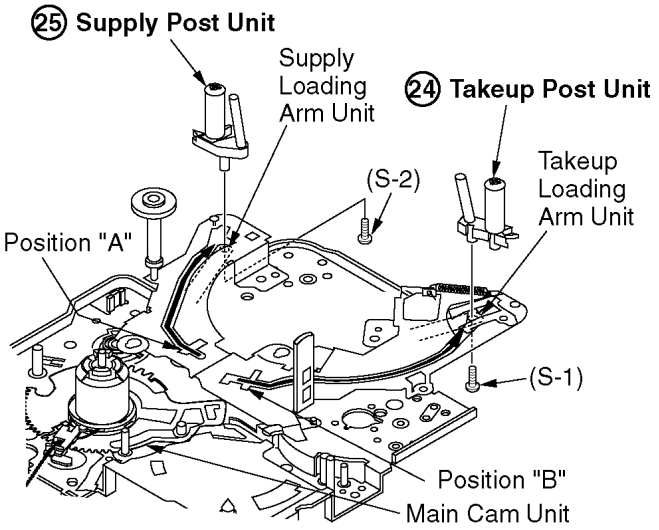
Reassembly Note:

1. **Installation of the Reduction Gear Unit**

(1) Install the Reduction Gear Unit so that Guide Pin fits in the Slot on the Chassis.
Then, tighten 2 Screws (S-1).

Fig. DM16

6.2.20. Takeup Post Unit, Supply Post Unit



Note:

1. **Removal of the Supply Post Unit and the Takeup Post Unit**

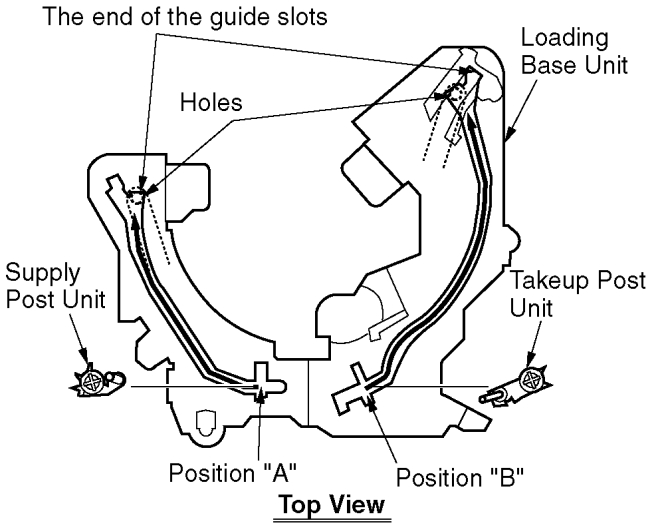
(1) Load the Mechanism to the **Loading Position** to gain access to Screw (S-1) and (S-2) for removal by rotating the Main Cam Unit.
(2) Then, remove Screw (S-1) and (S-2).
(3) Put the arm of the Supply Loading Arm Unit and the Takeup Loading Unit aside.
(4) Slide back the Supply Post Unit and the Takeup Post Unit to Position "A" and "B" and remove.

Fig. DM18-1

Reassembly Note:

1. **Installation of the Supply Post Unit and the Takeup Post Unit**

(1) Confirm that the end of the arm (the threaded hole) of Supply Loading Arm Unit and the end of the arm (the threaded hole) of Takeup Loading Arm Unit are in the end of the guide slots.
(2) Install the Supply Post Unit and the Takeup Post Unit into Position "A" and "B" while being careful of the direction of the Supply Post Unit and the Takeup Post Unit.
(3) Slide the Supply Post Unit and the Takeup Post Unit to the end of guide slots as shown.



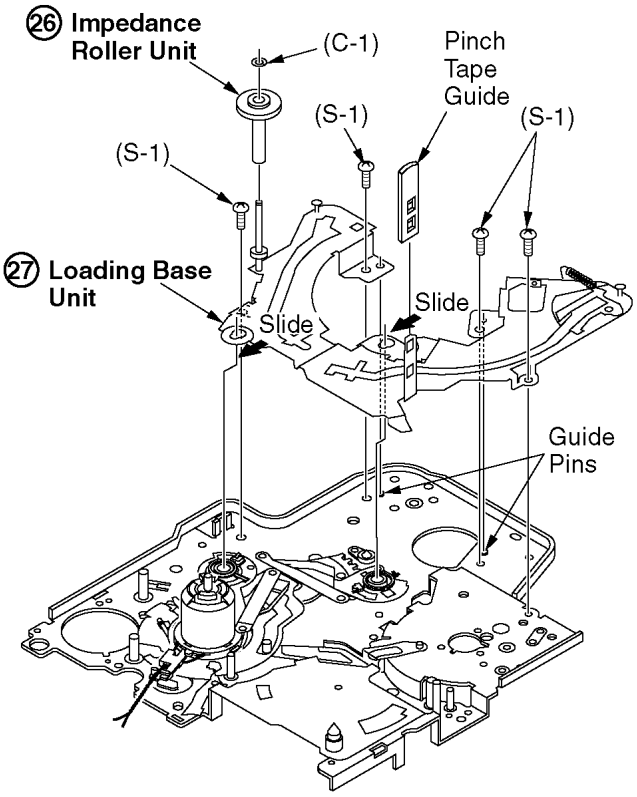
(4) Align the Hole of the Supply Loading Arm Unit with the Threaded Hole of the Supply Post Unit. Do the Same with the Takeup Post Unit.
(5) Tighten Screw (S-1) and (S-2).
Caution:
Be careful of the following when tightening Screw (S-1) and (S-2).
1. Be sure to tighten screws straight.
2. Do not over tighten screws.

2. **Adjustment of the Supply Boat Unit and Takeup Boat Unit**

(1) After replacing, perform the "Tape Interchangeability Adjustment" procedures.

Fig. DM18-2

6.2.21. Impedance Roller Unit, Loading Base Unit



Note:

1. Do not apply excessive pressure to the Impedance Roller Unit.
2. **Removal of the Loading Base Unit**
   Do not apply excessive pressure to the Loading Base Unit so as not to bend.

(1) When removing the Loading Base Unit, remove 4 Screws (S-1).
(2) Release 2 Guide Pins while lifting up the Loading Base Unit slightly. Then, remove the Loading Base Unit after sliding as indicated by the arrow.

Fig. DM19-1

Reassembly Note:

1. **Installation of the Loading Base Unit**

(1) Before installing the Loading Base Unit, rotate the Main Cam Unit clockwise (to change the gear position from STOP position (Fig. DM20) to Standby position (Fig. DM19-2)) so that Holes A, B, C, and D are Through Holes with holes on the chassis.
(2) Confirm that Portion (a) of Supply Loading Arm Unit and (b) of Takeup Loading Arm Unit are in the position keeping off Thread Holes for 4 Screws (S-1) as shown. Because the Threaded Holes of the S and T Post are aligned with Hole of the S and T Loading Arm Unit.
(3) Install the Loading Base Unit while sliding.
(4) Tighten 4 Screws (S-1).

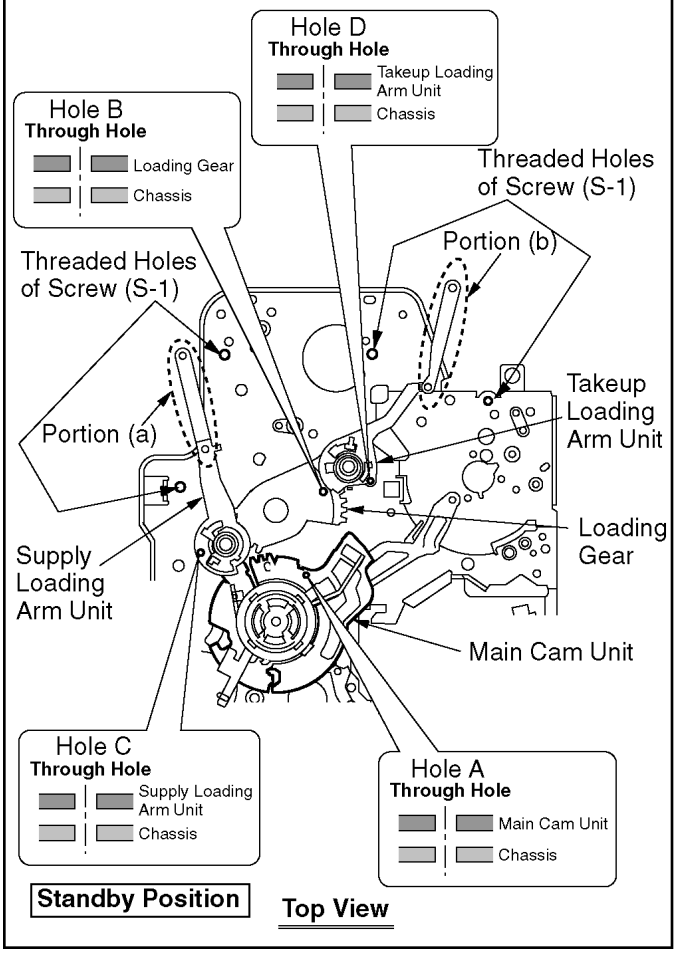
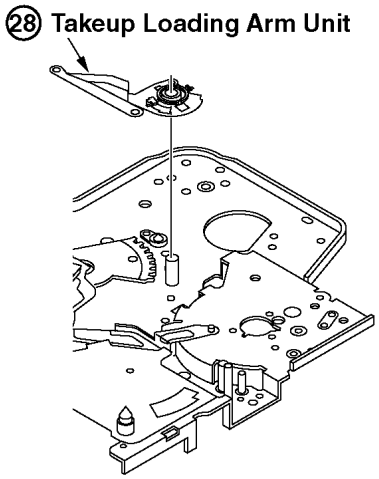


Fig. DM19-2

6.2.22. Takeup Loading Arm Unit



Reassembly Note:

1. **Gear Alignment**
   - **The Takeup Loading Arm Unit and the Loading Gear**

(1) Rotate the Main Cam Unit counterclockwise (to change the gear position from Fully loaded position (Fig. DM21-2) to STOP position (Fig. DM20)) so that Hole C on the Supply Loading Arm Unit and Hole B on the Loading Gear are Through Holes with holes on the chassis.

(2) Install the Takeup Loading Arm Unit while aligning Hole D with the hole on the chassis (Through Hole) as shown.

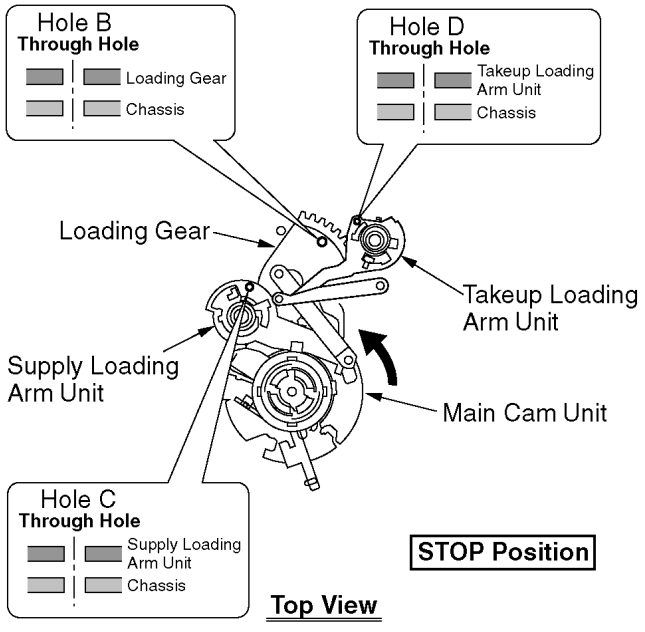
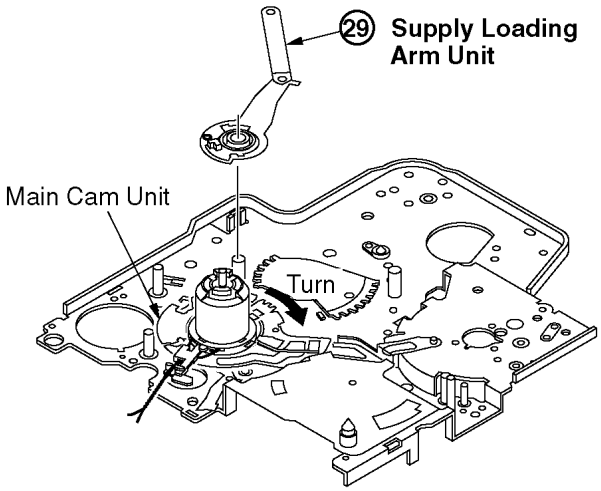


Fig. DM20

6.2.23. Supply Loading Arm Unit



1. **Removal of the Supply Loading Arm Unit**

(1) Remove the Supply Loading Arm Unit after rotating the Main Cam Unit as much as it can.

Fig. DM21-1

Reassembly Note:

1. **Gear Alignments**
   - **The Supply Loading Arm Unit and the Loading Gear**
   - **The Supply Loading Arm Unit and the Main Cam Unit**

(1) Confirm that Hole A on the Main Cam Unit is a Through Hole with a hole on the chassis by rotating the Main Cam Unit clockwise as much as possible. Also, make sure the Loading Gear makes contact with contact point.
(2) Set the Supply Loading Arm Unit so that the last tooth of its lower gear is just outside the last tooth of the Loading Gear as shown.
(3) Turn the Main Cam Unit counterclockwise first ①, then turn Supply Loading Arm Unit clockwise slightly ② so that the last tooth on upper gear of Supply Loading Arm Unit is just outside tooth (a) of Main Cam Unit.

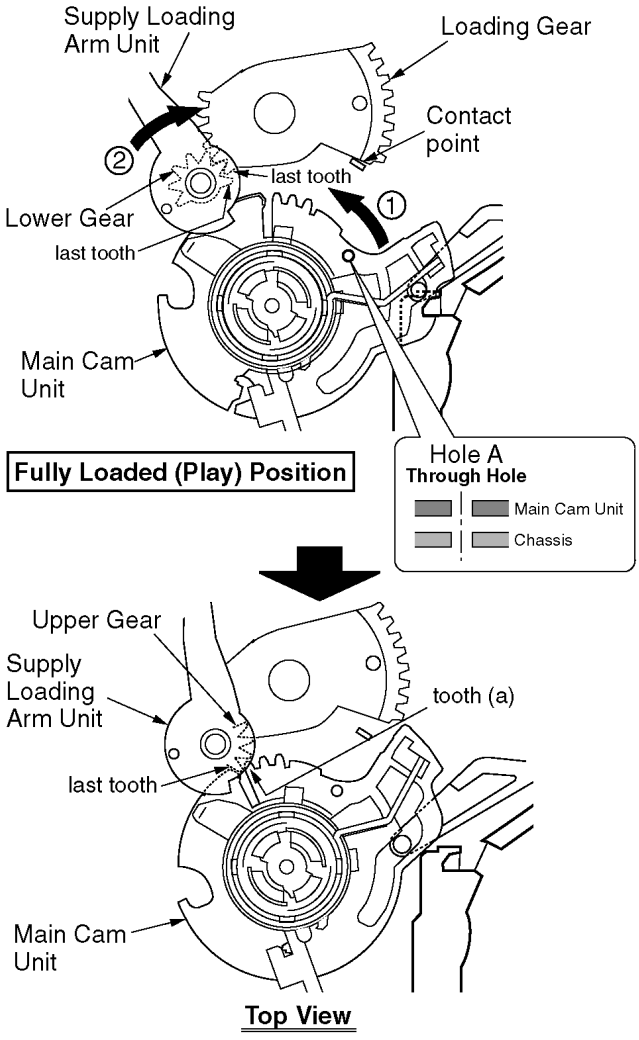


Fig. DM21-2

(4) Confirm that Hole A, B, and C are Through Holes by rotating the Main Cam Unit.

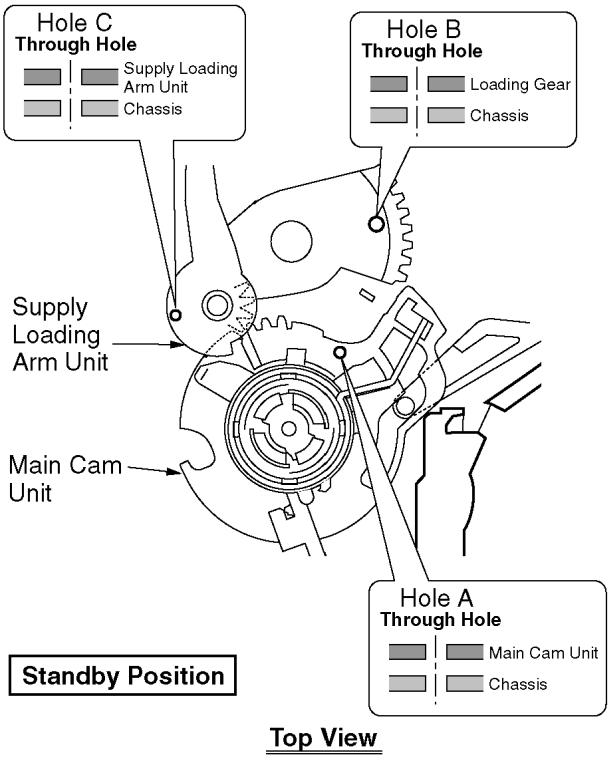
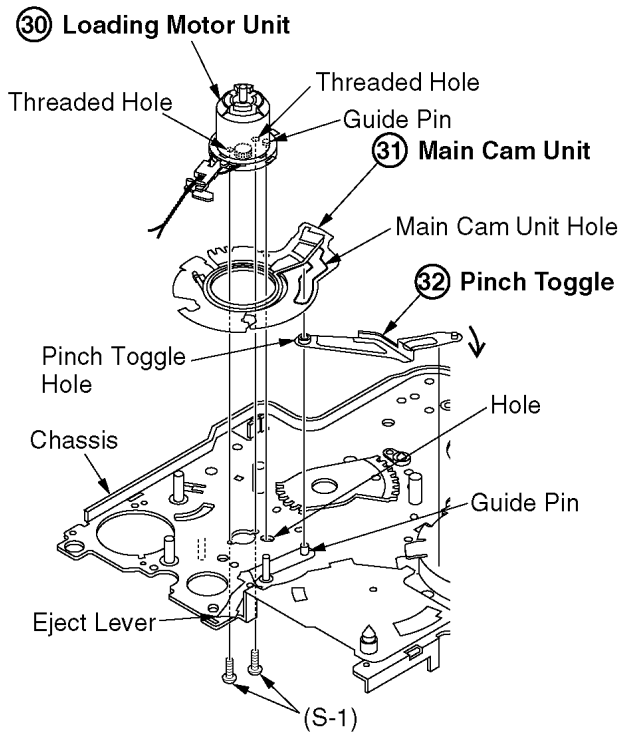


Fig. DM21-3

6.2.24. Loading Motor Unit, Main Cam Unit, Pinch Toggle



Reassembly Note:

1. Do not pull the Eject Lever upward so as not to bend it.
2. **Installation of the Pinch Toggle and the Main Cam Unit**

(1) Install the Pinch Toggle so that the Pinch Toggle Hole fit over the Guide Pin.
(2) Install the Main Cam Unit so that Guide Pin fits in the Main Cam Unit Hole.

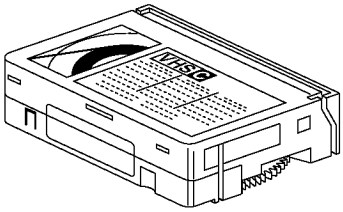
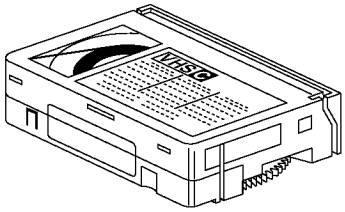
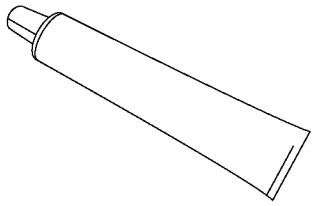
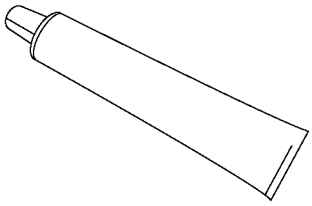
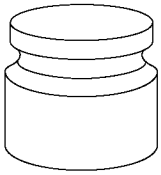
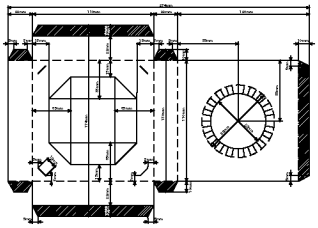
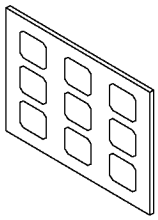
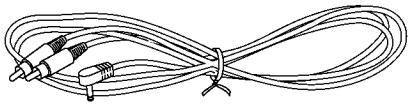
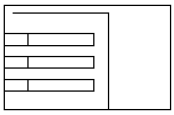
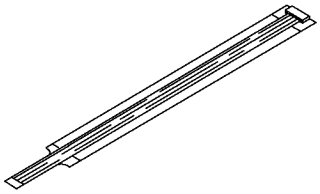
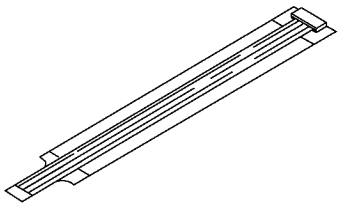
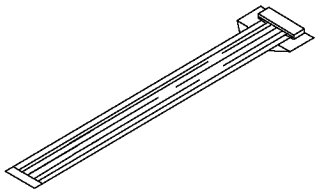
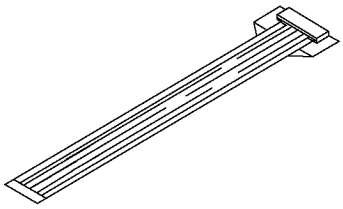
3. **Installation of the Loading Motor Unit**

(1) Install the Loading Motor Unit the Guide Pin fits in Hole on chassis.
(2) Tighten 2 Screws (S-1). If the 2 Screws (S-1) can not reach Threaded Holes, push down on the upper side of the Loading Motor Unit to tighten 2 Screws (S-1).

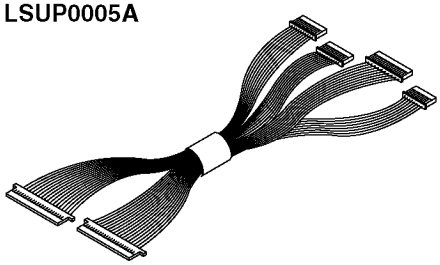
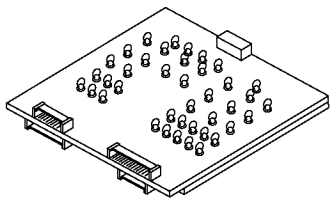
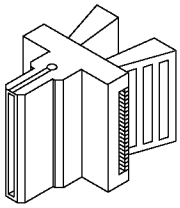
Fig. DM22

7 ADJUSTMENT PROCEDURES

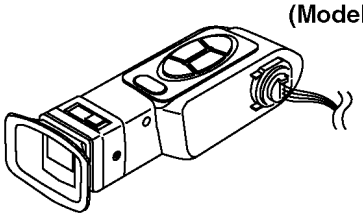
7.1. SERVICE FIXTURES & TOOLS

VHS-C Alignment Tape VFMS0004H6C 	VHS-C Alignment Tape VFMW0001C 	Molytone Grease VFK1024 
Grease LSUQ0002 	Grease VFKS0081 	Lock Screw VHDW0125
A.W.B. Adjustment Fixture VFKW0066 	Color Chip Chart VFKW0116 	Audio Video Cable VJAW0032 
Head Cleaning Stick VFK27 	Extension Cable 12P VUVS0007 	Extension Cable 20P LSUA0020 
Extension Cable 22P VUVS0012 	Extension Cable 28P VUVS0015 	

TP Board Kit

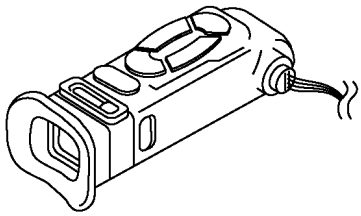
TP Adjustment Cable 40P LSUP0005A 	TP Adjustment P.C.B. 40P VFKW0123B 	TP Clip 36P LSUP0005C 

EVF Unit **LSYK0232 (Model: B,C,D,E,F)**



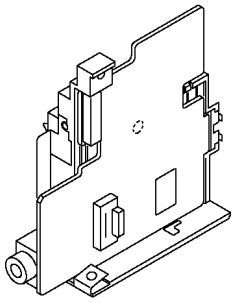
The part number of the monochrome EVF Unit for **Model B, C, D, E, F** is different from that of the monochrome EVF Unit (LSYK0232) which is supplied as a representative service fixture.

Color EVF Unit **LSYK0234 (Model: A)**

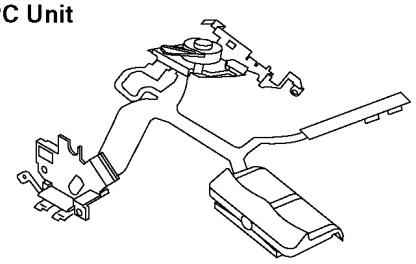


The part number of the color EVF Unit for **Model A** is different from that of the color EVF Unit (LSYK0234) which is supplied as a representative service fixture.

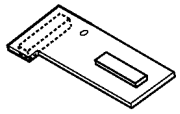
Battery Catcher Unit **LSEQ0549 (Model: A,B)** **LSEQ0550 (Model: C,D,E,F)**



Side L FPC Unit **LSEQ0556**

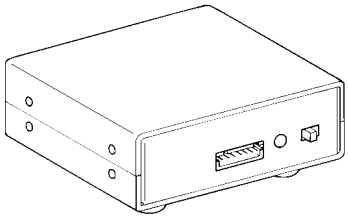


Relay C.B.A. **LSEP8033A1**

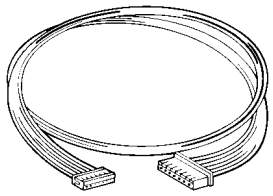


CAAS Kit **VFKW1000**

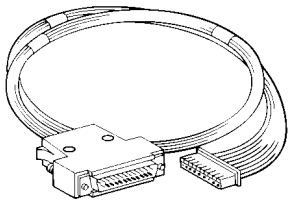
Interface Box VFKW1000A



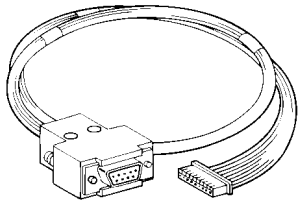
Camera Connecting Cable VFKW1000B



25pin RS-232C Cable VFKW1000D



9pin RS-232C Cable VFKW1000C



7.2. MECHANICAL ADJUSTMENT

7.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Isopropyl Alcohol 91 %.

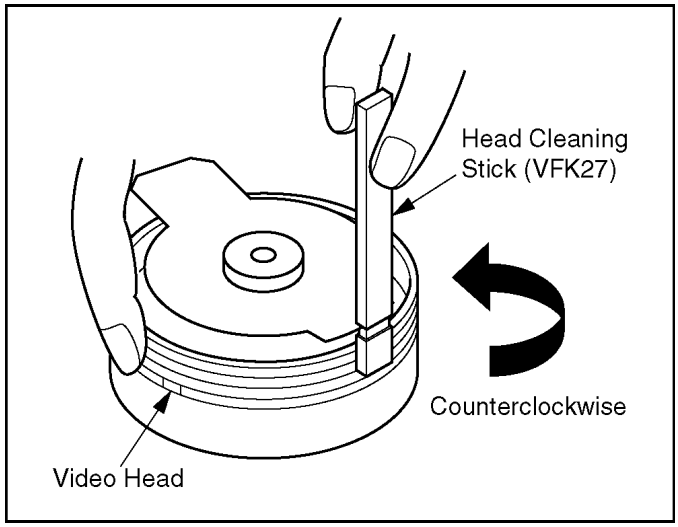


Fig. M1

Note:

a. Do not rub vertically or apply excess pressure to the Video Heads.

   Do not turn the Upper Cylinder Unit clockwise while cleaning.

b. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Isopropyl Alcohol 91 % remaining on the cylinder tape path. Otherwise, tape damage will occur.

7.2.2. ADJUSTMENT PROCEDURES

7.2.2.1. TAPE INTERCHANGEABILITY ADJUSTMENT

Before perform these Adjustment/Confirmation procedures, be sure to complete following items.

1. Connect the TP Board Kit to S301 on the camcorder. Refer to "HOW TO USE TP BOARD KIT" in "SERVICE NOTES."

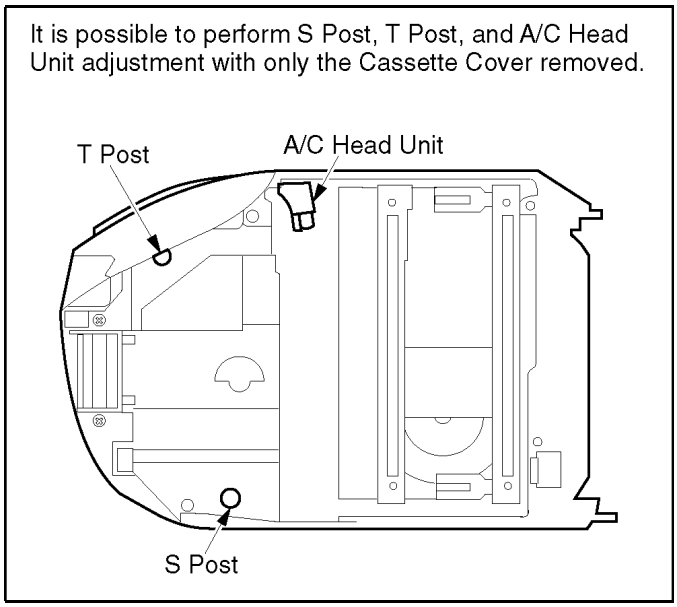

It is possible to perform S Post, T Post, and A/C Head Unit adjustment with only the Cassette Cover removed.
T Post
A/C Head Unit
S Post

Fig. M2-1

2. Put the unit into the service mode "I. Tracking Fix" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION" in "SERVICE NOTES."
3. Remove the Cassette Lid Cover from the Cassette Tape or the Alignment Tape.

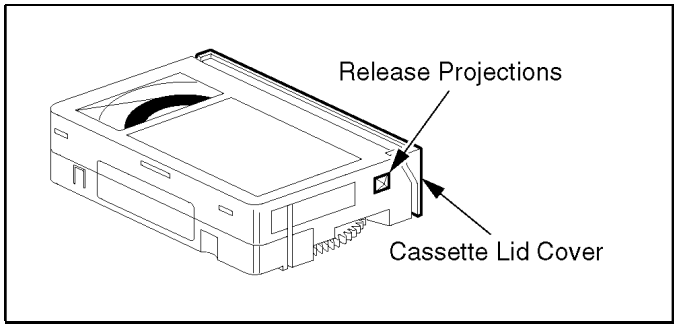


Fig. M2-2

Equipment Required:

- Dual Trace Oscilloscope
- VHS-C Alignment Tape (VFMS0004H6C)
- VHS-C Alignment Tape (VFMW0001C)
- Screwdriver Set (Purchase Locally)
- TP Board Kit
- TP Adjustment Cable 40P (LSUP0005A)
- TP Adjustment P.C.B. 40P (VFKW0123B)
- TP Clip 36P (LSUP0005C)

7.2.2.2. ENVELOPE OUTPUT ADJUSTMENT

The height of the S and T Posts replacement part is preset at the factory.

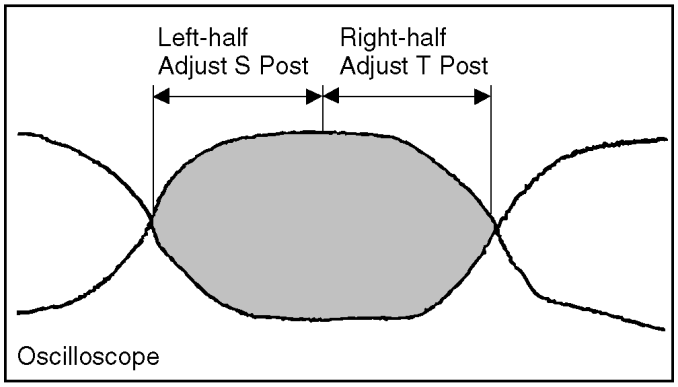
Purpose:	To achieve a satisfactory picture and secure precise tracking.
Symptom of Misadjustment:	If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

1. Put the unit into the service mode "I. Tracking Fix" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION" in "SERVICE NOTES."
2. Connect the oscilloscope to Pin 30 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.
3. Play back the Alignment Tape (VFMS0004H6C).
4. Confirm that the RF envelope is flat enough. If not, with Flat Headed (—) Screwdriver, adjust S and T post height so that the envelope waveform becomes as flat as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust S post height. If the envelope drop appears on the right-half of the waveform, adjust T post height.

   CAUTION:

   Do not apply excessive pressure onto the S and T Posts when adjusting S and T post height.

Before Adjustment



After Adjustment

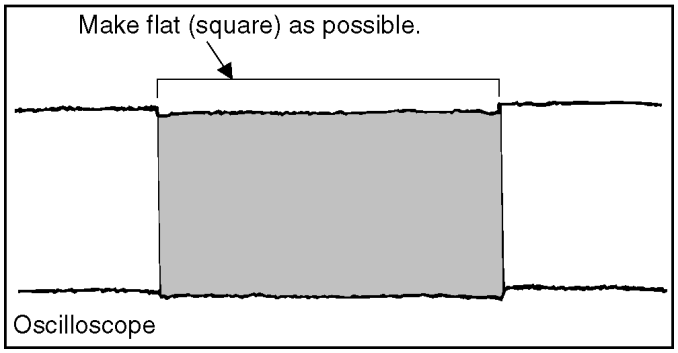


Fig. M3-1

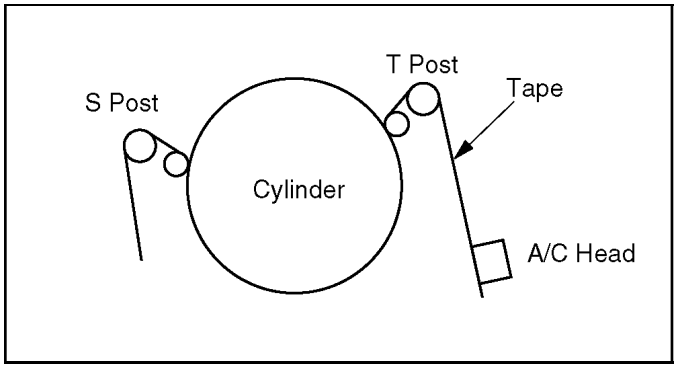


Fig. M3-2

Note:

It will be possible to confirm step 4) after performing the following steps.

a. Exit the "I. Tracking Fix" mode, then skip the "J. PG Shifter" mode to enter other modes (except these 2). Or, close the service mode.

b. Press the Tracking Control Up or Down button on the camcorder. Make sure that the envelope waveform remains flat. If not, readjust S and/or T post heights.

5. After adjustment, confirm that the tape travels without curing at S and T posts.

   If curing is apparent, readjust the height of posts.

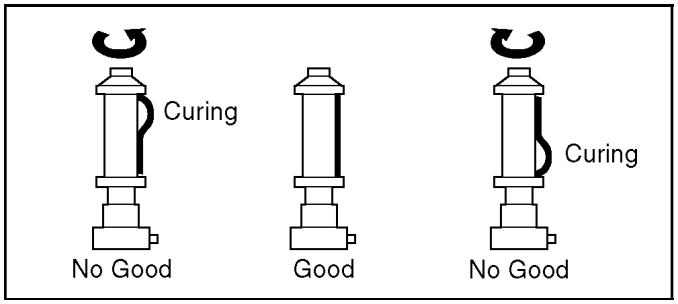


Fig. M3-3

7.2.2.3. A/C HEAD HEIGHT ADJUSTMENT

The height of the A/C Head replacement part is preset at the factory.

Purpose:	To be sure the tape runs properly along the Control Head.
Symptom of Misadjustment:	If the control signal is not properly picked up, Servo Operation can not be achieved.

1. Connect the oscilloscope to Pin 25 (PB Control signal) on the TP Adjustment P.C.B.
2. Play back the Alignment Tape (VFMW0001C)
3. Confirm that the Sub Control Signal is 500 mV±200 mV. If not, **slightly and equally** adjust Screw A, Screw B, and Screw C on the A/C Head Unit to achieve the sub control signal level of 500 mV±200 mV.

   (Sub Control Signal level will decrease when rotating screws clockwise, and increase when rotating screws counterclockwise.)

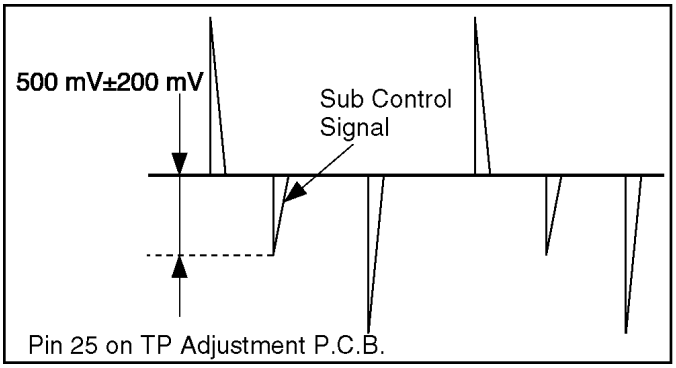


Fig. M4-1

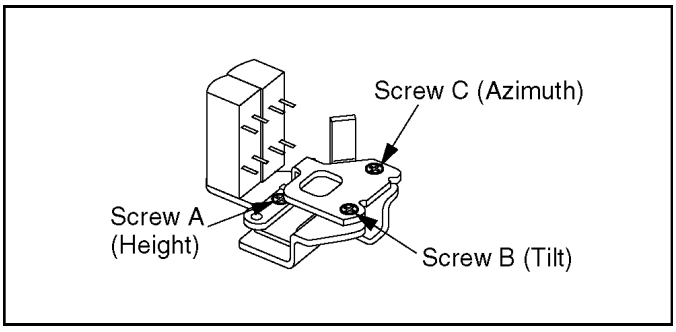


Fig. M4-2

7.2.2.4. A/C HEAD AZIMUTH ADJUSTMENT

Purpose:	To adjust the position and height of the A/C Head so that it meets the tape tracks properly.
Symptom of Misadjustment:	If the position of the A/C Head is not properly adjusted, the Audio S/N Ratio will be poor.

1. Connect the Audio/Video Cable on the camcorder.
2. Connect the oscilloscope to audio output jack.
3. Playback the Alignment Tape (VFMS0004H6C).
4. Adjust Screw C (Azimuth) on the A/C Head Unit so that the output level is at maximum.

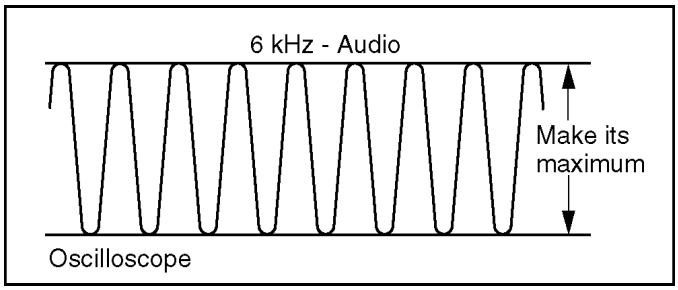


Fig. M5

5. Confirm and readjust the A/C Head height.
6. Confirm and readjust Screw C (Azimuth) on the A/C head so that the output audio becomes is maximum.

7.2.2.5. A/C HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose: To adjust the Horizontal Position of the A/C Head.

Symptom of Misadjustment: If the Horizontal Position of the A/C Head is not properly adjusted, maximum envelope can not be obtained at the Neutral Position of the Tracking Control Circuit.

1. Put the unit into the service mode "I. Tracking Fix" to defeat Auto Tracking. Refer to "SERVICE MODE SPECIFICATION" in "SERVICE NOTES."
2. Connect the oscilloscope to Pin 30 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.
3. Play back the Alignment Tape (VFMS0004H6C).
4. Set the Screwdriver into the Hole (A) as shown.

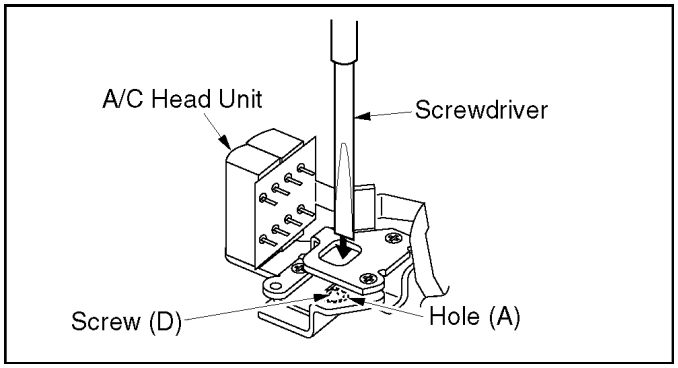


Fig. M6-1

5. Slowly move the A/C Head Unit to the direction "A" or "B" as shown so that the envelope is at maximum.

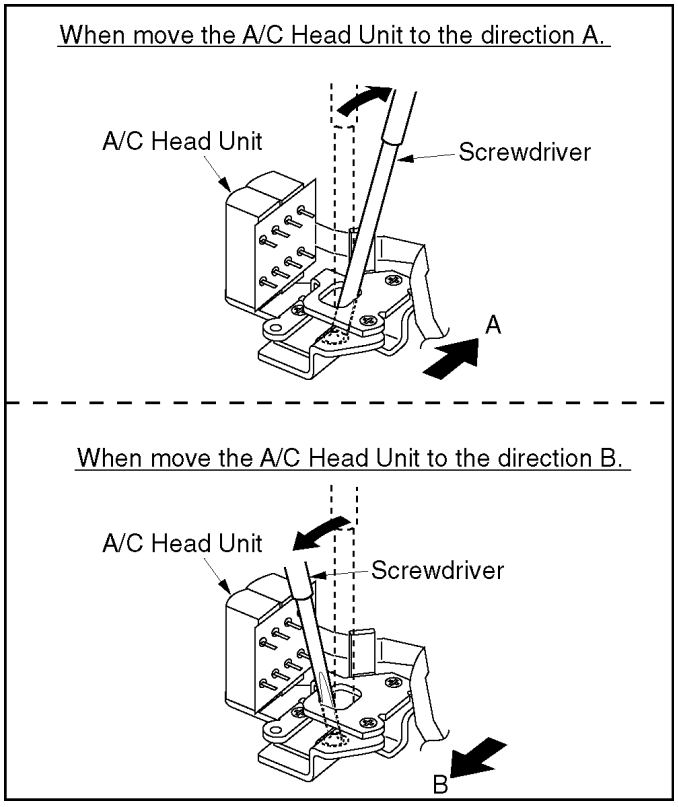


Fig. M6-2

6. To find the center of the maximum period of the envelope, move the A/C Head Unit to confirm the limits on either side of the maximum period.

Note:

It will be possible to confirm step 6) after performing the following steps.

a. Exit the "I. Tracking Fix" mode, then skip the "J. PG Shifter" mode to enter other modes (except these 2). Or, close the service mode.

b. Press the Tracking Control Up Button on the camcorder several times (count the number of times pressed) until the maximum envelope is reduced to 1/2.

c. Press the Tracking Control Down Button on the camcorder several times (count the number of times pressed) until the maximum envelope is reduced to 1/2.

d. If the number of pressing is not the same, readjust A/C Head horizontal position.

7.2.2.6. CONFIRMATION OF ENVELOPE OUTPUT

Purpose: To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment: If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

1. Connect the oscilloscope to Pin 30 (Envelope signal) on the TP Adjustment P.C.B. Use Pin 33 (Head Switch signal) as a trigger.
2. Play back the Alignment Tape (VFMS0004H6C).
3. Confirm that the envelope waveform is as flat as possible (V1/V(max)> 0.7).

   If adjustment is required, adjust S Post and/or T Post with "—" Screwdriver. Refer to "Envelope Output Adjustment."

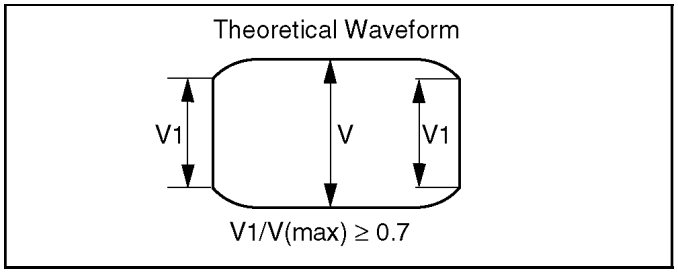


Fig. M7

7.3. ELECTRICAL ADJUSTMENT

7.3.1. INTRODUCTION

Most of Electrical adjustments can be adjusted using Personal Computer (PC-EVR Adjustment Software).
The Set-up of PC-EVR Adjustment and the VR (Variable Resister) Adjustment Procedure are described in this section. For adjustment item (section) for the model you are servicing, please refer to the following table.

ADJUSTMENT ITEM (Section)	ADJUSTMENT SYTEM	MODEL					
		PV-D300	VM-D100	PV-L550	PV-L600	PV-L650	VM-L450
Electrical Adjustment for CAMERA Section	Frequency Adjustment: VR Adjustment	○	○	○	○	○	○
	w/o Frequency Adjustment: PC-EVR Adjustment	○	○	○	○	○	○
Electrical Adjustment for VCR Section	PC-EVR Adjustment	○	○	○	○	○	○
Electrical Adjustment for COLOR EVF Section	PC-EVR Adjustment	○	—	—	—	—	—
Electrical Adjustment for MONOCHROME EVF Section	VR Adjustment	—	○	○	○	○	○
Electrical Adjustment for LCD MONITOR Section	PC-EVR Adjustment	—	—	○	○	○	○

7.3.2. INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Adjustment Item \ Replacement Parts		MAIN C.B.A.	IC306(EEPROM)	IC309(HALL AMP)	IC602(TIMING SIGNAL GENERATOR)	IC605(SAMPLING HOLD&AGC CONTROL)	IC3001(LUMINANCE/CHROMINANCE SIGNAL PROCESS)	IC3002(TWIN CCD 1H DELAY)	X601	ELECTRONIC VIEWFINDER C.B.A	IC901(EVF DRIVE)	CCD C.B.A.	IC601(CCD IMAGE SENSOR)	COLOR ELECTRONIC VIEWFINDER C.B.A	LCD C.B.A.	IC9001(RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL)	IC9002(OP. AMP)	LENS UNIT	EVF UNIT	LCD UNIT	CYLINDER UNIT
Camera Section	Frequency Adjustment				○				○												
	VCO Adjustment		○																		
	Burst/Sync Level Adjustment		○																		
	Hall Amp Adjustment		○	○		○												○			
	Auto Focus Adjustment		○									○	○					○			
	Gamma Adjustment		○			○															
	A/D Input Adjustment		○			○															
	Iris PWM Adjustment		○	○		○															
	Pedestal Level Adjustment		○																		
	YH Level Adjustment		○																		
	Auto white balance Adjustment		○			○						○	○								
VCR Section	Playback Video Adjustment	○	○				○														
	Sync Tip Frequency Adjustment	○	○				○														
	Deviation Adjustment	○	○				○														
	Rec Level Adjustment	○	○				○														
	Comb Filter Gain Adjustment	○	○				○	○													
	YNR Adjustment	○	○				○	○													
	Head Switching Position Adjustment	○	○																		○
Color EVF Section	VCO Adjustment													○					○		
	EVF Pedestal/Contrast Adjustment													○					○		
	RB Sub Pedestal Adjustment													○					○		
	RB Sub Contrast Adjustment													○					○		
	Color Gain Adjustment													○					○		
	EVF White Balance Adjustment													○					○		
Monochrome EVF Section	Vertical Size Adjustment									○	○										
	Centering Adjustment									○	○										
	Brightness Adjustment									○	○										
	Focus Adjustment									○	○										
LCD Section	PLL Adjustment		○												○	○				○	
	Pedestal Level Adjustment		○												○	○				○	
	Contrast Adjustment		○												○	○				○	
	RB Sub Pedestal Adjustment		○												○	○				○	
	RB Sub Contrast Adjustment		○												○	○				○	
	Color Gain Adjustment		○												○	○				○	
	VCOM bias Adjustment		○												○	○	○			○	
	White Balance Adjustment		○												○	○				○	

Note: ○ : Adjustment Item

7.3.3. TEST EQUIPMENT

To do all of the Electrical Adjustment, the following equipments are required.

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. DVM (Digital Volt Meter)
3. Frequency Counter
4. Color TV Monitor
5. VHS-C Alignment Tape (VFMS0004H6C)

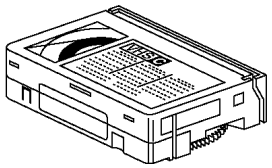


Fig. E1-1

6. Vectorscope
7. Plastic Tip Driver
8. Audio Video Cable (VJAW0032)

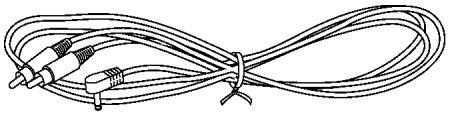


Fig. E1-2

9. Power Supply for Interface Box.
10. Side L FPC Unit (LSEQ0556)

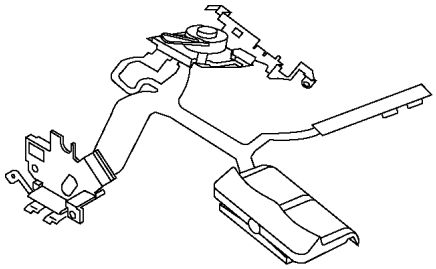


Fig. E1-3

11. EVF Unit (LSYK0232 : **Model B,C,D,E,F**)
12. Color EVF Unit (LSYK0234 : **Model A**)
13. Personal Computer
    PC: IBM PC/AT or compatible
    OS: MS-DOS or MS-Windows
    CPU: 486 or higher
    Drive: 3.5 inch 1.44 MB floppy disk drive
    Port: D-Sub-9-pin Serial or D-Sub-25-pin Serial
    Monitor: VGA Color
14. PC-EVR Adjustment Program (VF0C2000DV10)
    Note:
    Ask latest version when placing order for PC-EVR Adjustment program.
15. CAAS Kit (VFKW1000)
    Interface Box (VFKW1000A)
    Camera Connecting Cable (VFKW1000B)
    9 Pin RS-232C Cable (VFKW1000C)
    25 Pin RS-232C Cable (VFKW1000D)
16. TP Board Kit

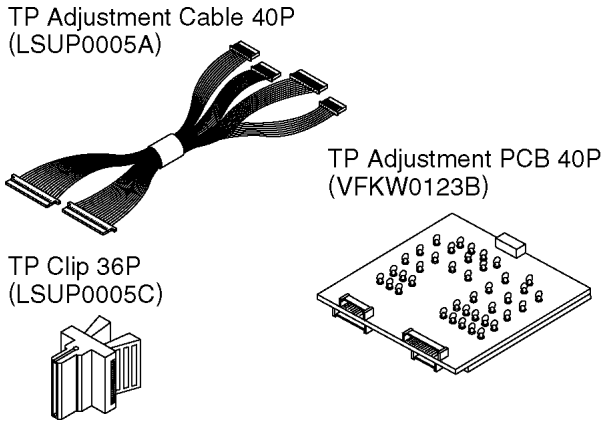


Fig. E1-4

(adjustment equipment with using Infinity Lens)

17. Lighting (Light Box (VFK1164LBX1) is recommended)
18. Infinity Lens (VFK1164TCM02)
    (with Focus Chart)
19. 49 mm Ring (VFK1164TAR49)
20. Gray Scale Chart (VFK1164TFGS2)
21. Color Bar Chart (VFK1164TFCB2)
22. White Chart (VFK1164TFWC2)
23. Color Conversion Filter (VFK1164TFCT2)

(adjustment equipment without using Infinity Lens)

24. Lighting (Halogen Lamp (2000 lux))
25. Reflection Chart
    Reflection Chart Set (VFKS003-N)
    (Reflection Chart Set consists of Gray Scale Chart (VFKS003A), Color Bar Chart (VFKS003B), Registration Chart (VFKS003C), and Resolution Chart (VFKS003D))
    Gray Scale Chart (VFKS003A)
    Color Bar Chart (VFKS003B)
    Registration Chart (VFKS003C)
    Resolution Chart (VFKS003D)
    Color Chip Chart (VFKW0116)
26. Color Temperature Conversion Filter 80A or equivalent Color Temperature Conversion Filter
27. Color Compensating Filter CC05M
28. A.W.B. Adjustment Fixture (VFKW0066)

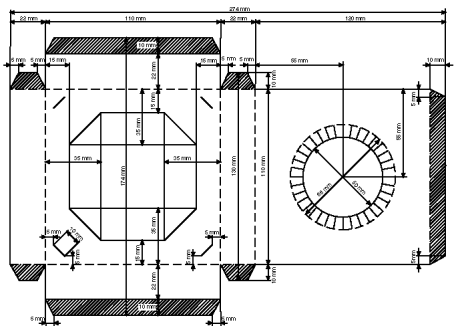


Fig. E1-5

7.3.4. PREPARATION

1. Connect the Interface Box to the TP Board Kit with Camera Connecting cable (VFKW1000B).
2. Connect the Interface Box to the Personal Computer with RS-232C cable (VFKW1000C or VFKW1000D).
3. Connect the TP Board Kit to S301 on the camcorder. Refer to "HOW TO USE TP BOARD KIT" in "SERVICE NOTES."
4. Connect the AC Adaptor and camcorder, and apply
   DC +6 V to the Interface Box.
5. Power on the camcorder.

Note:

In case that the camcorder is in DEMO mode, release DEMO mode as follows:

Power off the camcorder first. Then, disconnect the TP Board Kit, and power on the camcorder. Then, press the STOP button over 5 seconds.

CAUTION:

a. **Do not connect or disconnect any cables while the camcorder is powered on.**

b. **Before using the TP Board Kit, be sure to clean S301 pattern with alcohol and confirm that there is no dust in the TP Clip.**

c. **To achieve the best adjustment results, warm up the camcorder for approx. 30 minutes before adjustment.**

d. **When removing the TP Clip from S301 on the camcorder, be sure to pinch the grips.**

<Computer Assisted Adjustment System>

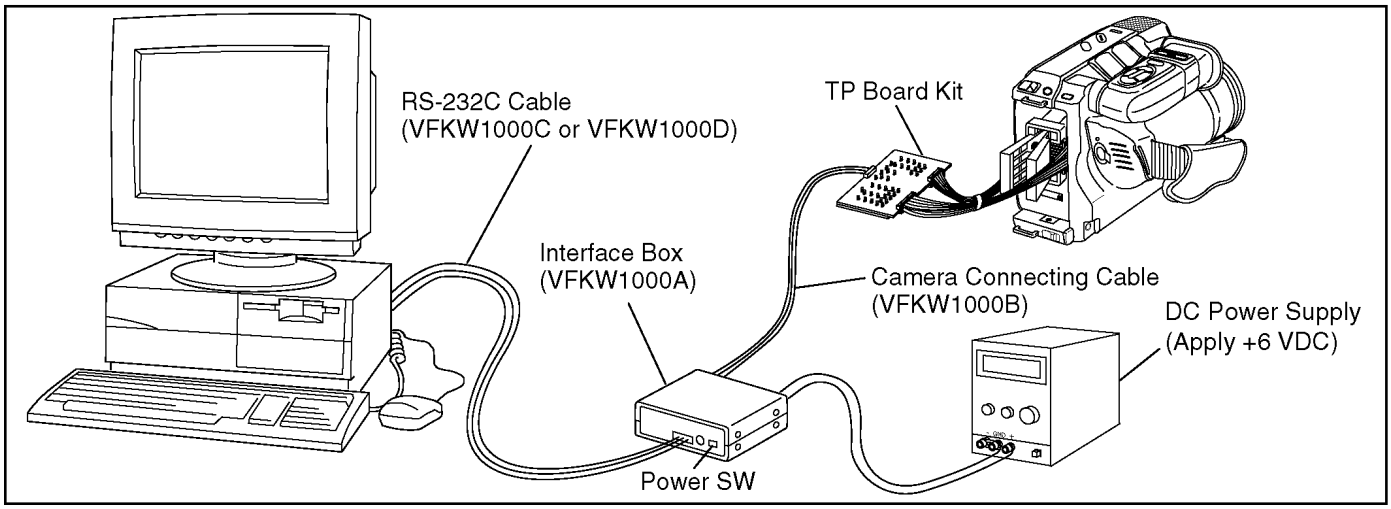


Fig. E2-1

6. Set up the camcorder for adjustment as follows:

Method 1 (with using Infinity Lens)

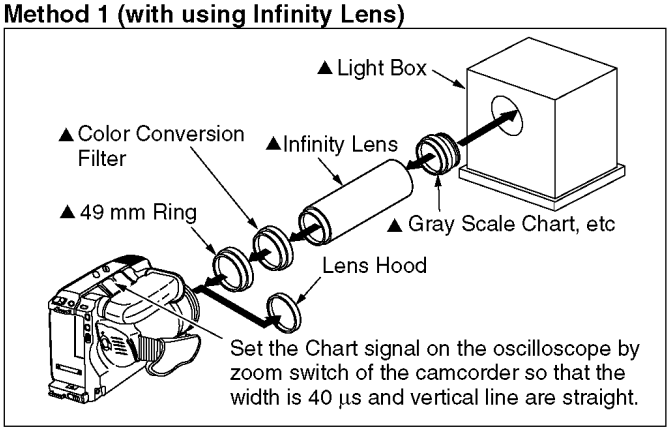

▲Light Box
▲Color Conversion Filter
▲Infinity Lens
▲49 mm Ring
▲Gray Scale Chart, etc
Lens Hood
Set the Chart signal on the oscilloscope by zoom switch of the camcorder so that the width is 40 μs and vertical line are straight.

Fig. E2-2

OR

Method 2 (without using Infinity Lens)

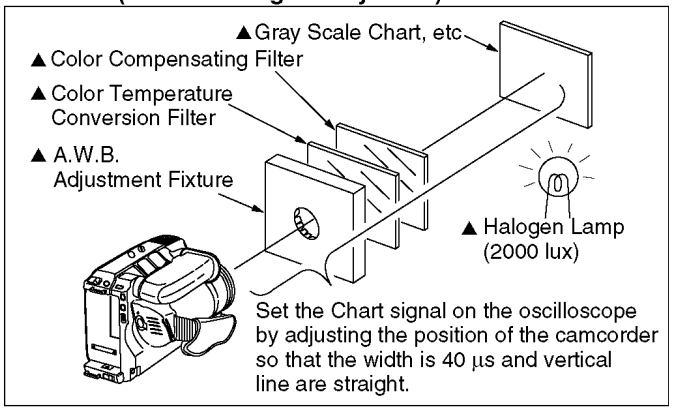

▲Gray Scale Chart, etc
▲Color Compensating Filter
▲Color Temperature Conversion Filter
▲A.W.B. Adjustment Fixture
▲Halogen Lamp (2000 lux)
Set the Chart signal on the oscilloscope by adjusting the position of the camcorder so that the width is 40 μs and vertical line are straight.

Fig. E2-3

For necessary equipments marked ▲ in Fig. E2-2 and E2-3, refer to the following table.

Adjustment Item \ Necessary equipment		Method 1							Method 2								
		Light Box	Infinity Lens / 49 mm Ring	Focus Chart	Gray Scale Chart	Color Bar Chart	White Chart	Color Conversion Filter	Halogen Lamp	Any object (High contrast)	Gray Scale Chart	Color Bar Chart	Color Chip Chart	White Chart	Color Temperature Conversion Filter	Color Compensating Filter	A.W.B. Adjustment Fixture
Camera Section	Frequency Adjustment ※	Not used															
	VCO Adjustment																
	Burst/Sync Level Adjustment																
	Hall Amp Adjustment																
	Auto Focus Adjustment (Automatic Adjustment)		○	○					Not available (Note 1)								
	Gamma Adjustment	○	○		○				○		○						
	A/D Input Adjustment	○	○		○				○		○						
	Iris PWM Adjustment	○	○		○				○		○						
	Pedestal Level Adjustment	○	○		○				○		○						
	YH Level Adjustment	○	○		○				○		○						
	Auto white balance Adjustment																
	1 Indoor Preset Adjustment	○	○		○				○		○						
	2 Indoor Input Adjustment	○	○		○				○		○						
	3 Outdoor Preset Adjustment	○	○		○			○	○		○				○	○	○
	4 Outdoor Input Adjustment	○	○		○			○	○		○				○	○	○
	5 Color Phase & R-Y, B-Y Gain Adjustment (Indoor Mode)	○	○			○			○				○				
	6 Color Phase & R-Y, B-Y Gain Adjustment (Outdoor Mode)	○	○			○		○	○				○		○	○	○
VCR Section	Playback Video Adjustment	Not used															
	Sync Tip Frequency Adjustment																
	Deviation Adjustment	○	○		○				○		○						
	Rec Level Adjustment	Not used															
	Comb Filter Gain Adjustment																
	YNR Adjustment	○				○			○			○					
	Head Switching Position Adjustment	Not used															
Color EVF Section	VCO Adjustment																
	EVF Pedestal/Contrast Adjustment	○	○		○				○		○						
	RB Sub Pedestal Adjustment	○	○		○				○		○						
	RB Sub Contrast Adjustment	○	○		○				○		○						
	Color Gain Adjustment	○	○			○			○			○					
	EVF White Balance Adjustment	Not used															
Monochrome EVF Section	Vertical Size Adjustment ※	○	○		○				○		○						
	Centering Adjustment ※	○	○		○				○		○						
	Brightness Adjustment ※	○	○			○			○			○					
	Focus Adjustment ※	○	○		○				○		○						
LCD Monitor Section	PLL Adjustment	Not used															
	Pedestal Level Adjustment	○	○		○				○		○						
	Contrast Adjustment	○	○		○				○		○						
	RB Sub Pedestal Level Adjustment	○	○		○				○		○						
	RB Sub Contrast Level Adjustment	○	○		○				○		○						
	Color Gain Adjustment	○	○			○			○			○					
	VCOM Level Adjustment	○	○		○				○		○						
	White Balance Adjustment	○	○		○				○		○						

※ (VR Adjustment)

Note 1: Auto Focus adjustment (Automatic adjustment) is available for only Method 1.

7.3.5. SET UP OF PC-EVR ADJUSTMENT PROGRAM

1. Turn on the Personal Computer.

   Windows® 95 will be set up automatically.

2. Restart it in MS-DOS mode.

3. Change the current directory to the one including the PC-EVR Adjustment Program and start up the PC-EVR Adjustment Program as follows.

1) If MS-DOS is Japanese mode, input "us," and then press "ENTER" key to be US mode on.

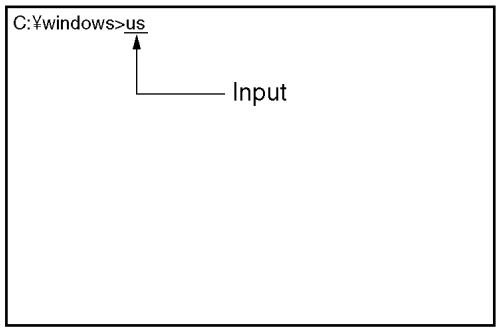


Fig. E3-1

2) Input "cd *****," and then press "ENTER" key to change the directory to the one including the PC-EVR Adjustment Program.

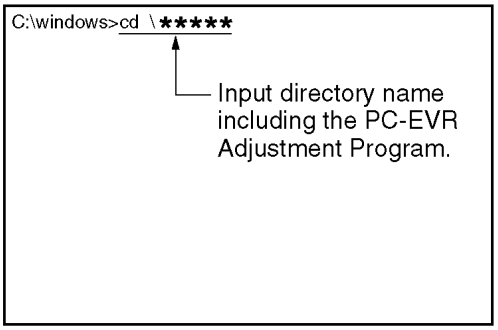


Fig. E3-2

3) Input "kc2000," and then press "ENTER" key to start up the PC-EVR Adjustment Program.

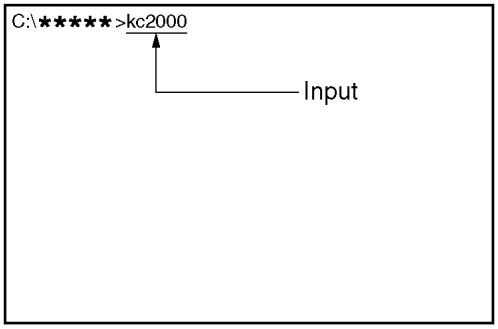


Fig. E3-3

"Select Model Number Menu" will be displayed.

4. Select the model number which you are servicing, and then press "Enter" key. The starting display will be displayed.

5. Perform set up items according to menu until "Main Menu" is displayed.

6. Select "Sub Menu" to adjust or check, etc. the camcorder.

Note:

The adjusted data is stored to EEPROM IC after each adjustment.

7.3.6. HOW TO USE MAIN MENU

Main Menu

Select "Sub Menu" by pressing ↑ ↓ (UP/DOWN) key in Main Menu. Then, adjust or check the camcorder according to the menu. Then, press "ENTER" key. "Sub Menu" will be displayed.

Note:

Menu 5 through 8 are needed for adjustment.

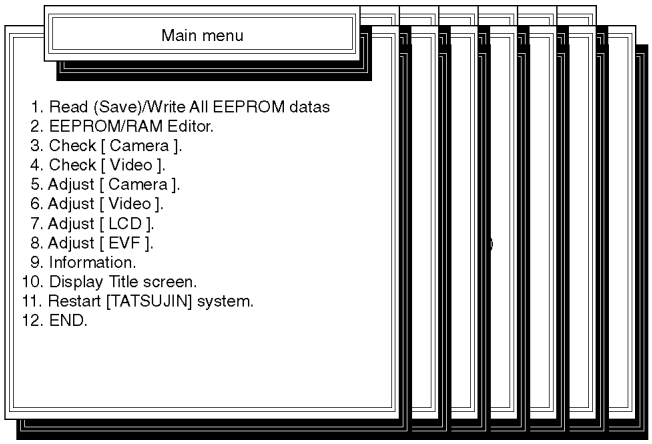

Main menu
1. Read (Save)/Write All EEPROM datas
2. EEPROM/RAM Editor.
3. Check [Camera].
4. Check [Video].
5. Adjust [Camera].
6. Adjust [Video].
7. Adjust [LCD].
8. Adjust [EVF].
9. Information.
10. Display Title screen.
11. Restart [TATSUJIN] system.
12. END.

Fig. E4-1

Also, by pressing ← → key, "Sub Menu" can be seen in order below.

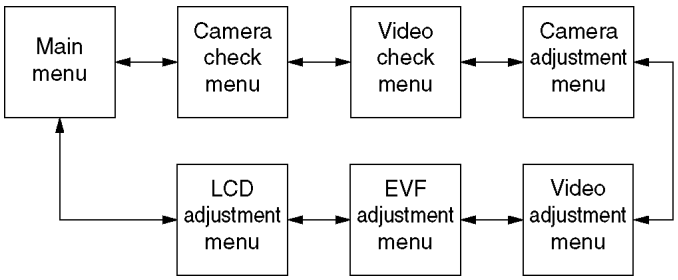


Fig. E4-2

7.3.7. VR ADJUSTMENT

7.3.7.1. CAMERA SECTION

7.3.7.1.1. Frequency Adjustment

Purpose: To set the chroma subcarrier.

Symptom of Misadjustment: The picture will be no color. (The burst shifts)

Specifications: 14.31818 MHz±80 Hz

Adjustment Procedure:

1. Remove the Side Case (L) Unit. Refer to "CABINET SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.

   Connect the Side L FPC unit to the camcorder as shown in Fig. E5-1

2. Connect the Frequency counter to TP601 of Main C.B.A.
3. Adjust C610 on the Main C.B.A. so that the frequency becomes 14.31818 MHz±80 Hz.

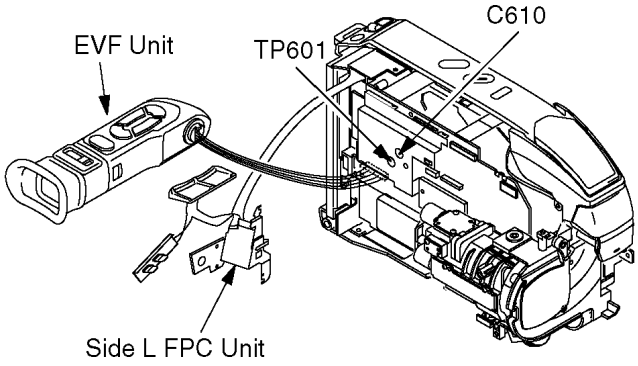


Fig. E5-1

7.3.8. MONOCHROME EVF SECTION

Note:

Camcorder need NOT to be powered off and on after each adjustment procedure.

Preparation

1. Before adjusting the Monochrome EVF, Camera section and VCR section adjustments must be completely adjusted.
2. Remove the EVF Case B Unit to gain access to VRs on the EVF C.B.A. (Refer to "DISASSEMBLY/ASSEMBLY PROCEDURES OF CABINET".)

7.3.8.1. Vertical Size Adjustment

Purpose: To set the standard vertical size on the EVF picture.

Symptom of Misadjustment: The vertical EVF picture size will be abnormal.

Test Point: ----------

Adjustment: VR901 (EVF C.B.A.)

Specification: Best Vertical size

Input: Gray Scale Chart

Mode: SP REC

Equipment: Viewfinder

Adjustment Procedure:

1. Aim the camcorder at the gray scale chart.
2. Adjust the VERTICAL SIZE CONTROL (VR901) so that the vertical picture size becomes correct.

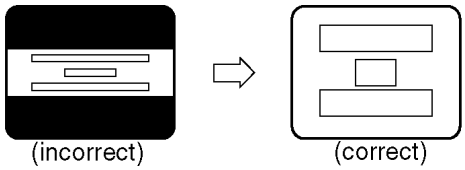


Fig. E5-2

7.3.8.2. Centering Adjustment

Purpose: To set the optimum picture position on the EVF picture.

Symptom of Misadjustment: The EVF picture will be shifted.

Test Point: ----------

Adjustment: Deflection Yoke Centering Magnet

Specification: The picture position becomes centered on the EVF picture

INPUT: Gray Scale Chart

Mode: SP REC

Equipment: Viewfinder

Adjustment Procedure:

1. Aim the camcorder at the gray scale chart.
2. Adjust the Deflection Yoke Centering Magnet by turning them so that the picture is centered in the Viewfinder.

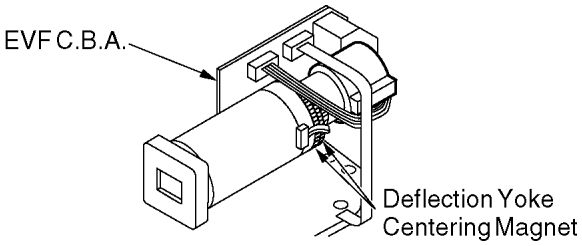


Fig. E5-3

7.3.8.3. Brightness Adjustment

Purpose: To set the optimum EVF brightness level.

Symptom of Misadjustment: The EVF picture will be too white or black.

Test Point: ----------

Adjustment: VR903 (EVF C.B.A.)

Specification: Natural Gradation

INPUT: Color Bar Chart

Mode: SP REC

Equipment: Viewfinder

Adjustment Procedure:

1. Aim the camcorder at the color bar chart.
2. Adjust the BRIGHTNESS CONTROL (VR903) so that the brightness in the Viewfinder becomes natural gradation.

7.3.8.4. Focus Adjustment

Purpose: To set the optimum focus on the EVF picture.

Symptom of Misadjustment: The EVF picture will be out of focus.

Test Point: ----------

Adjustment: VR902 (EVF C.B.A.)

Specification: Optimum focus

INPUT: Gray Scale Chart

Mode: SP REC

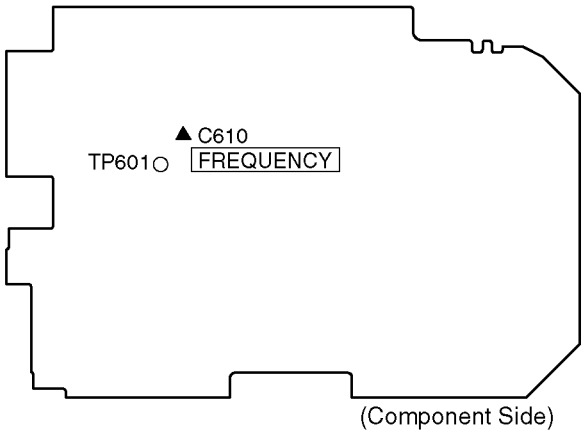
Equipment: Viewfinder

Adjustment Procedure:

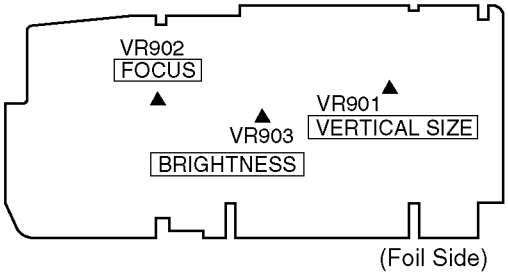
1. Aim the camcorder at the gray scale chart.
2. Adjust the FOCUS CONTROL (VR902) to optimum focus in the Viewfinder.

7.4. TEST POINTS AND CONTROL LOCATION

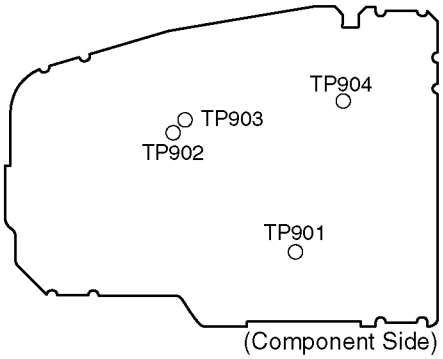
Main C.B.A.



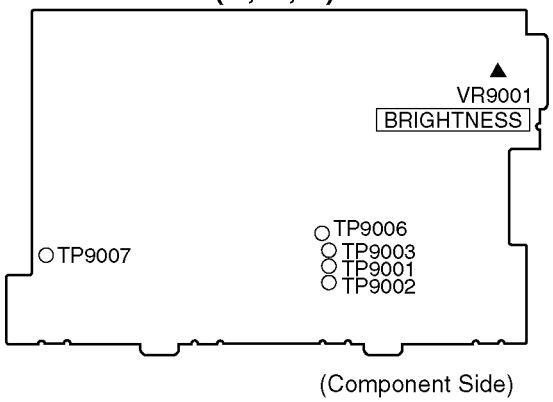
EVF C.B.A. (B, C, D, E, F)



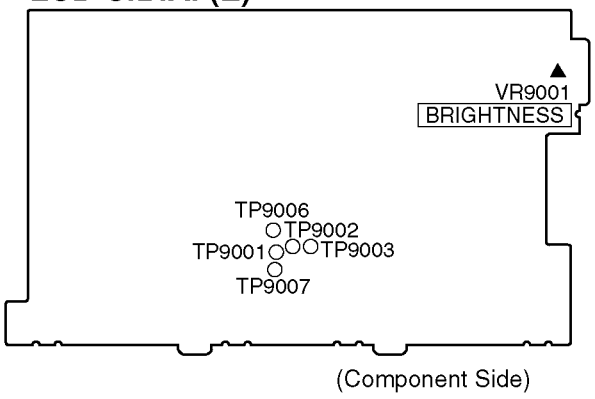
Color EVF A C.B.A. (A)



LCD C.B.A. (C, D, F)



LCD C.B.A. (E)



Test Point Information

○ Test Point with no Test Pin.

8 SCHEMATIC DIAGRAM

8.1. SCHEMATIC DIAGRAM & CIRCUIT BOARD LAYOUT NOTE

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.
2. Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.
5. Test point information
   ▨ :Test point with a no test pin.

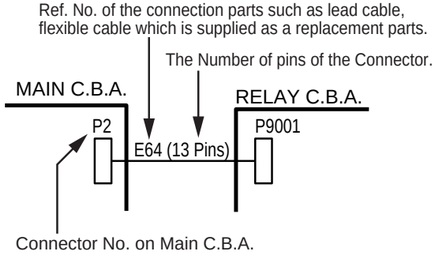
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

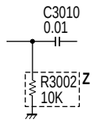
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
MAIN C.B.A.
RELAY C.B.A.
P2
E64 (13 Pins)
P9001
Connector No. on Main C.B.A.

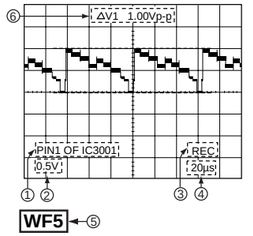
3. Parts enclosed in dashed lines marked “Z” are not used in any models included in this service manual.

Example:



Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Operation Mode of VCR
④ Time/Div
⑤ Waveform Point on Schematic
⑥ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing,
please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

Comparison chart of models & marks

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

Note:
Refer to item 3 of Schematic Diagram Notes for mark “Z”.

8.2. MAIN I (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

*1 NOTE
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6010 AND TP6012, OR SELECT THE H. SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE NOTES SECTION FOR MORE INFORMATION.

IC6001 KEY MATRIX CHART

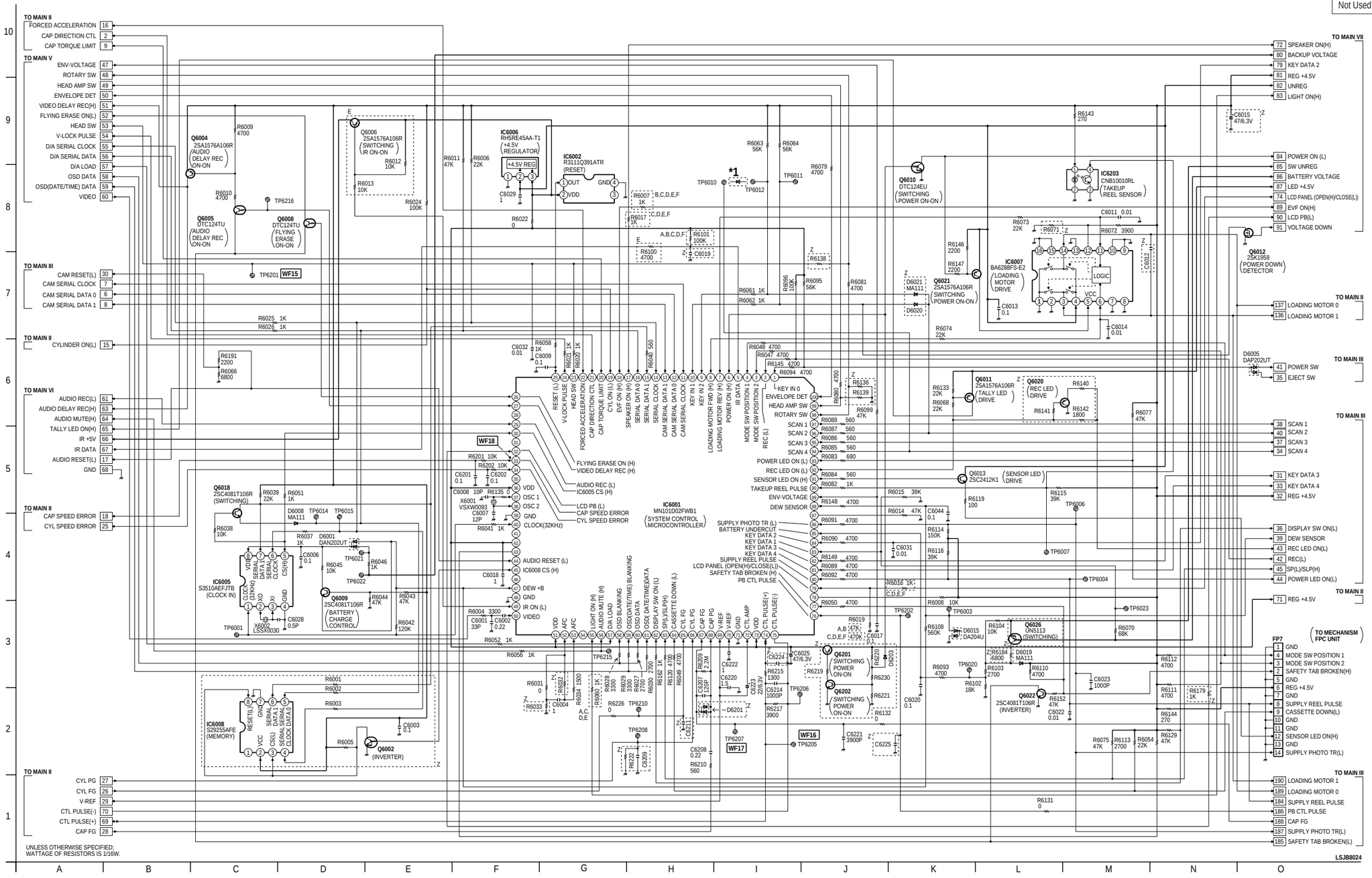
KEY IN	SCAN			
	SCAN 1 (PIN 97)	SCAN 2 (PIN 96)	SCAN 3 (PIN 95)	SCAN 4 (PIN 94)
KEY IN 0 (PIN 1)	POWER			EJECT
	OFF	CAMERA	VCR	

IC6001 KEY MATRIX CHART

VOLTAGE	0~0.18V	0.72~1.08V	1.62~1.98V	2.52~2.88V	3.42~3.78V	4.32~4.50V
KEY DATA 2 (PIN 84)	STOP	PLAY	FF/SEARCH	REW/ SEARCH	STILL	------
KEY DATA 3 (PIN 82)	LIGHT (ON)	LIGHT (AUTO)	------	------	------	LIGHT (OFF)
KEY DATA 4 (PIN 81)	UP	DOWN	TITLE	------	MENU	------

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

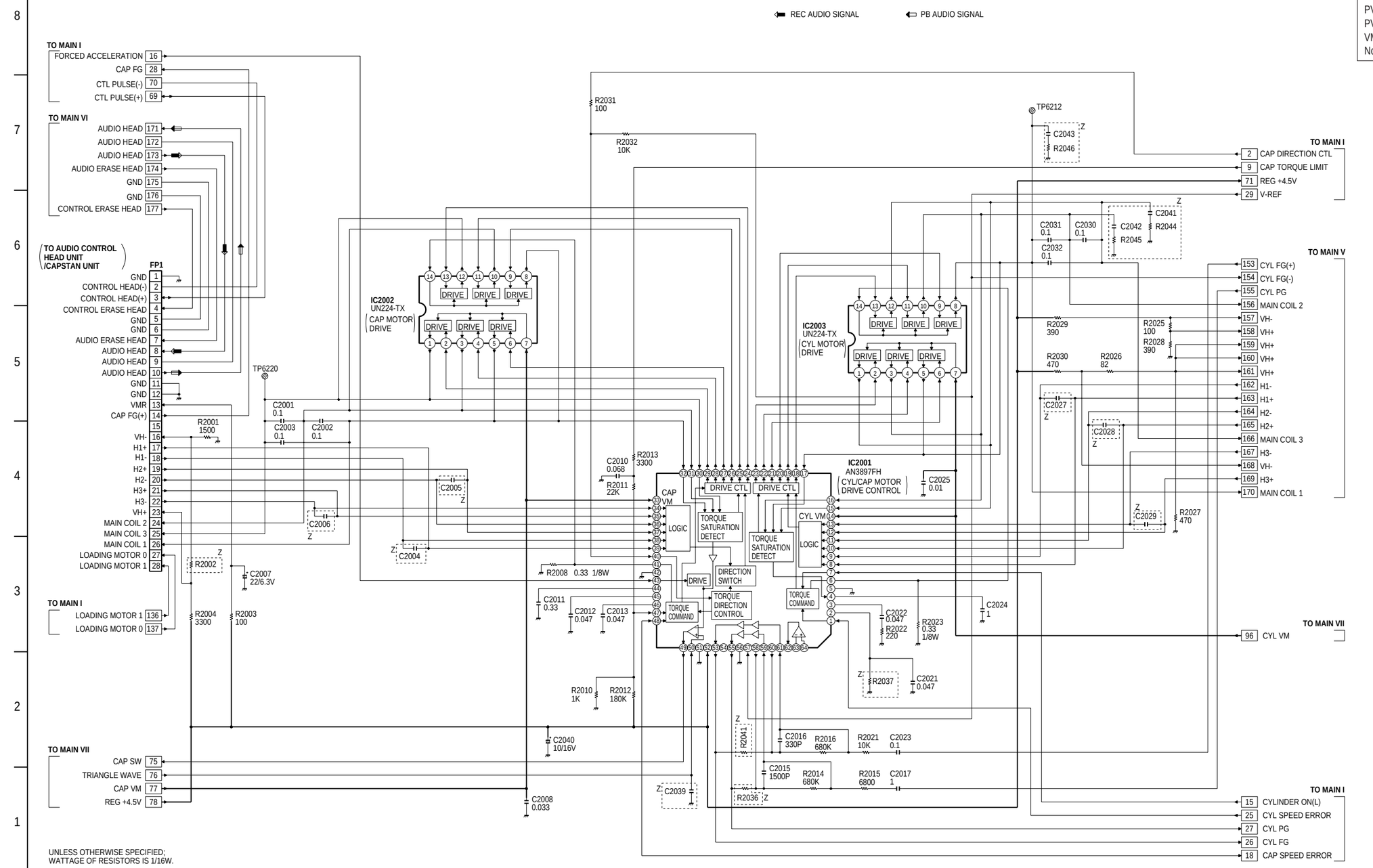


8.3. MAIN II (CYLINDER/CAPSTAN DRIVE) SCHEMATIC DIAGRAM

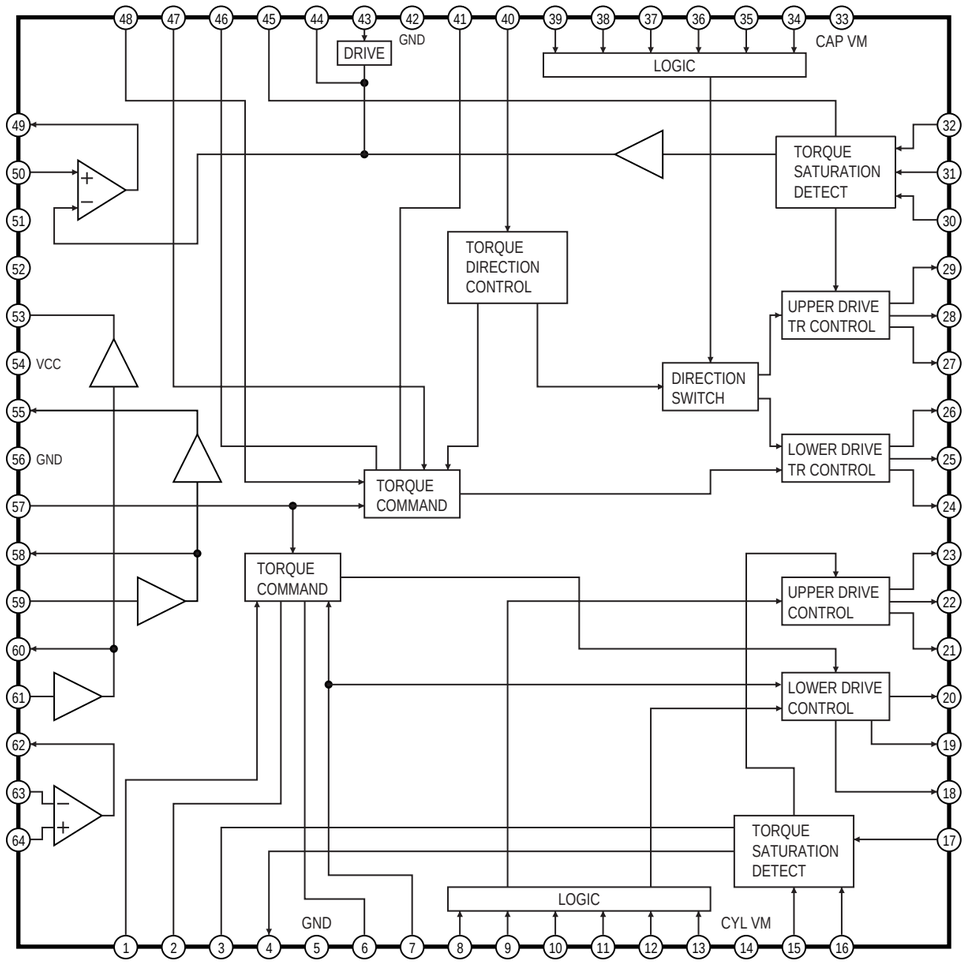
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



IC2001 CYLINDER/CAPSTAN MOTOR DRIVE CONTROL IC-DETAIL BLOCK DIAGRAM, AN3897FH



8.4. MAIN III (CAMERA I) SCHEMATIC DIAGRAM

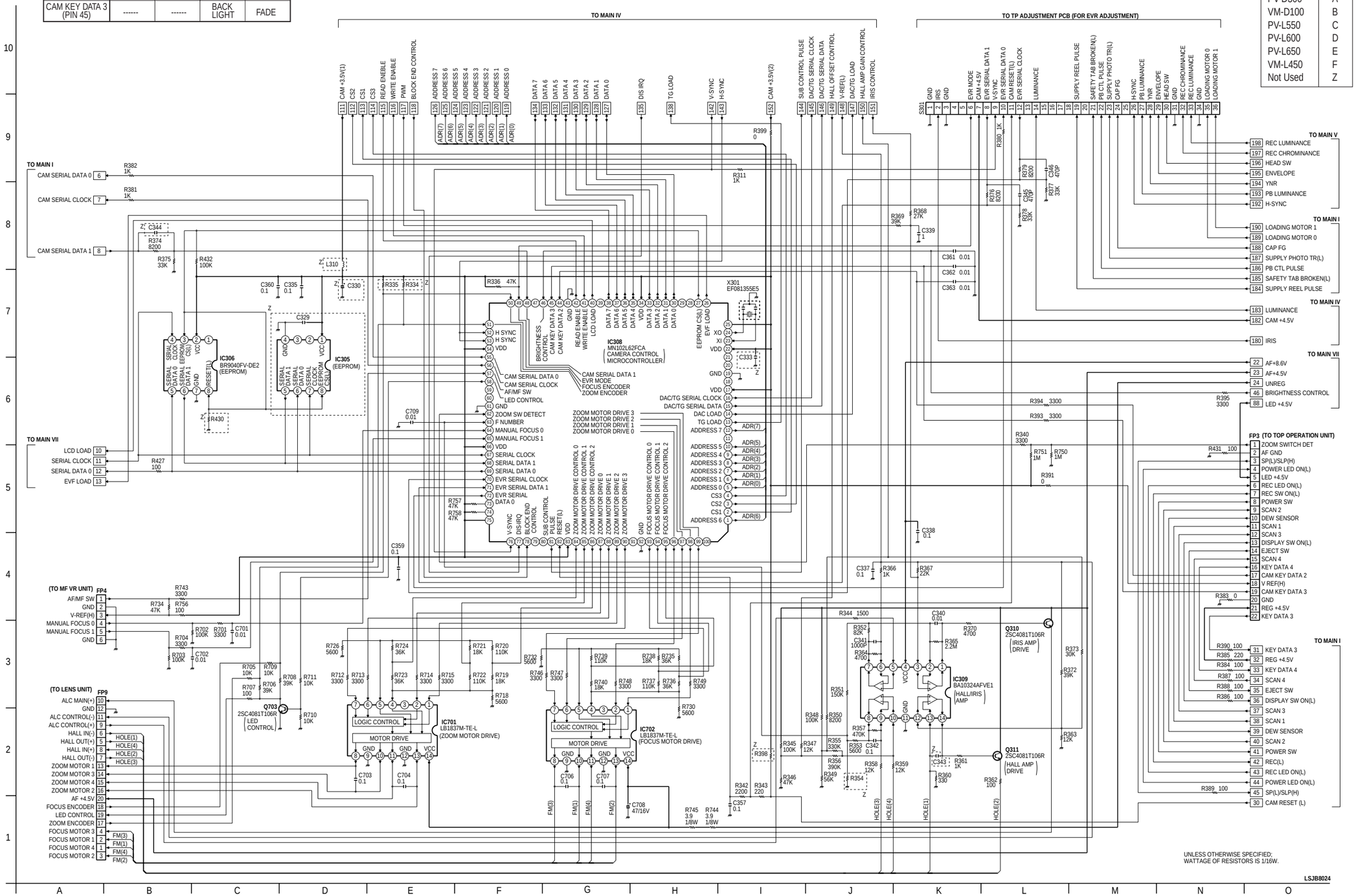
IC308 KEY MATRIX CHART

VOLTAGE	0 ~ 0.14V	0.71~0.89V	1.56~1.84V	2.41~2.69V
CAM KEY DATA 2 (PIN 44)	EIS	DIGITAL ZOOM	------	H.S. SHUTTER
CAM KEY DATA 3 (PIN 45)	------	------	BACK LIGHT	FADE

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

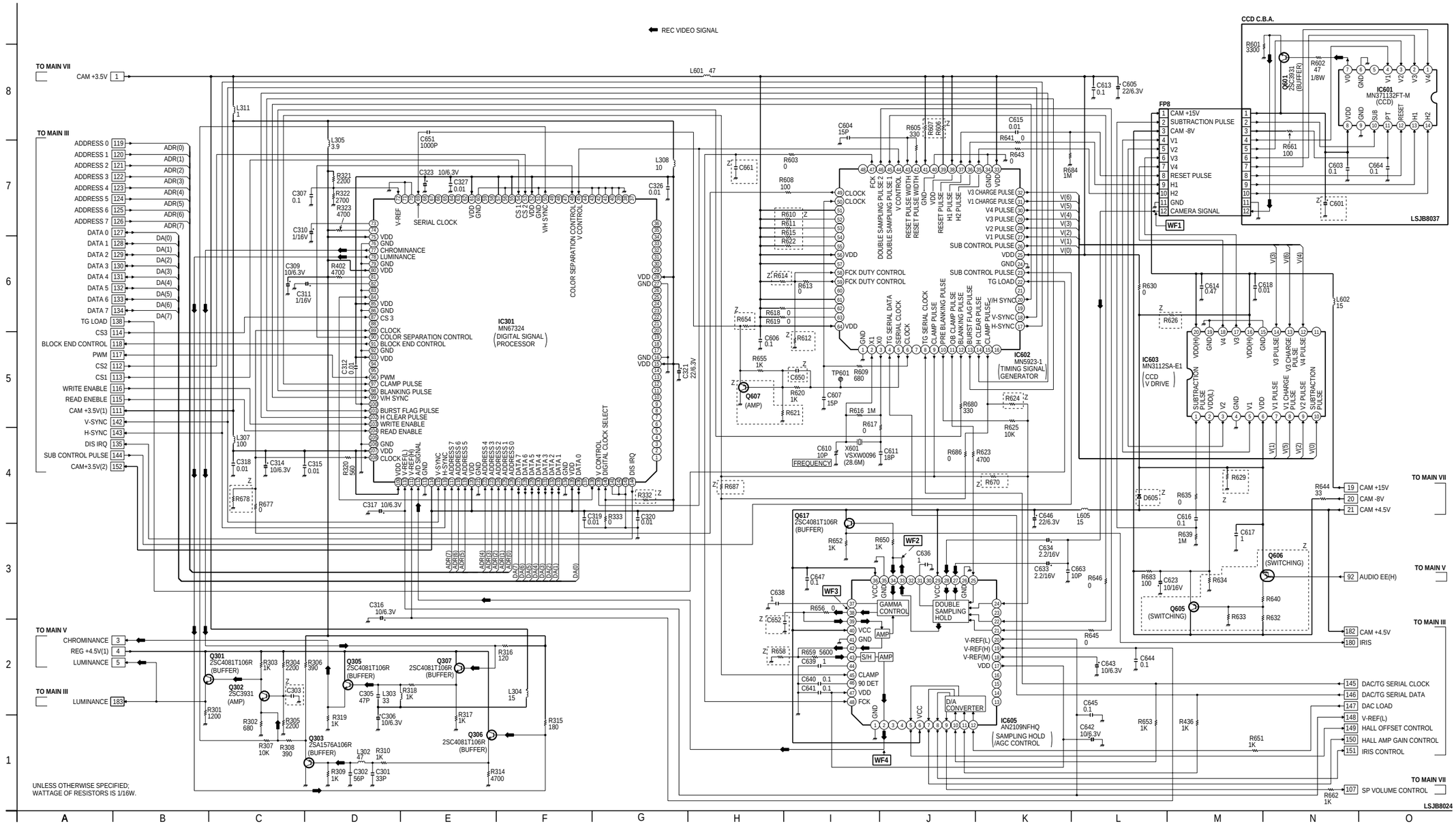


8.5. MAIN IV (CAMERA II) / CCD SCHEMATIC DIAGRAM

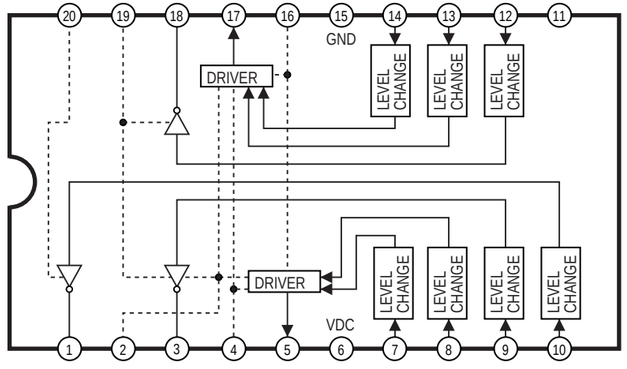
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

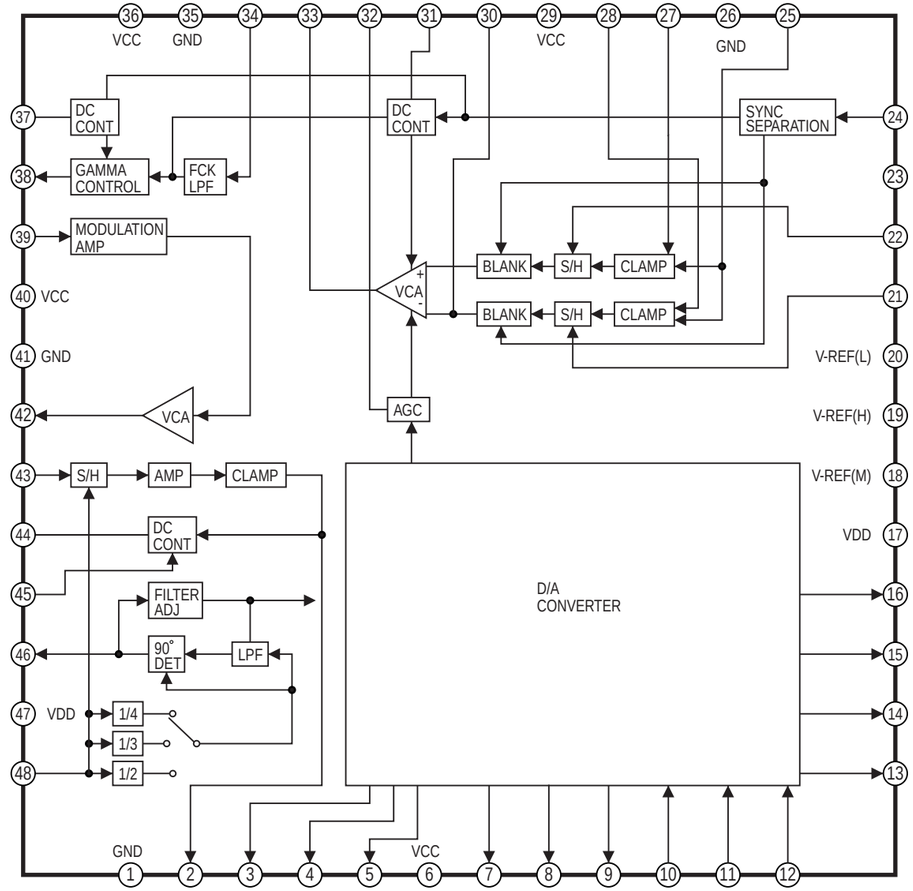
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



IC603 CCD V DRIVE IC-DETAIL BLOCK DIAGRAM, MN3112SA-E1



IC605 SAMPLING HOLD/AGC CONTROL IC-DETAIL BLOCK DIAGRAM, AN2109FHQ



8.6. MAIN V (VIDEO) SCHEMATIC DIAGRAM

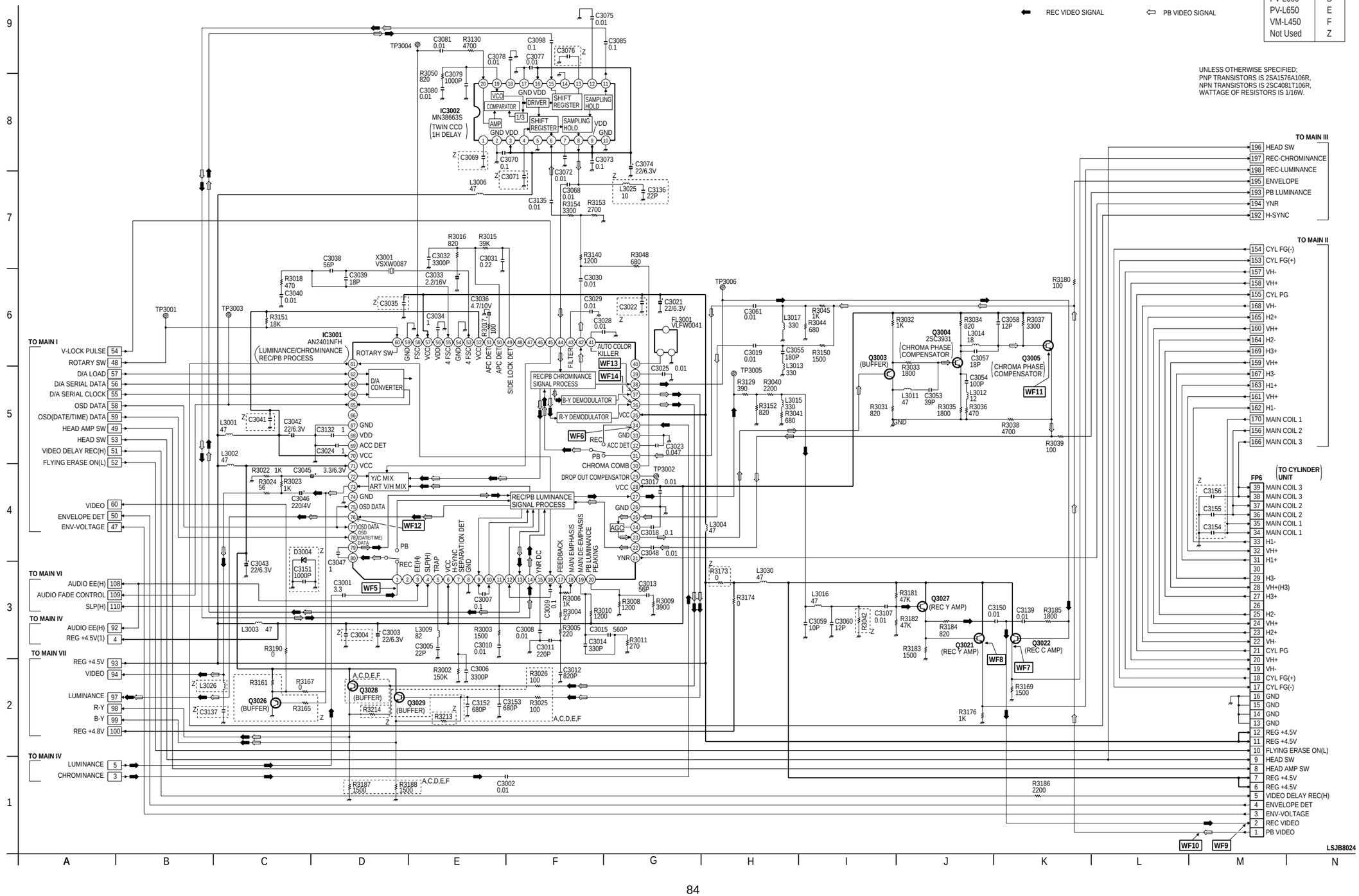
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

REC VIDEO SIGNAL
PB VIDEO SIGNAL

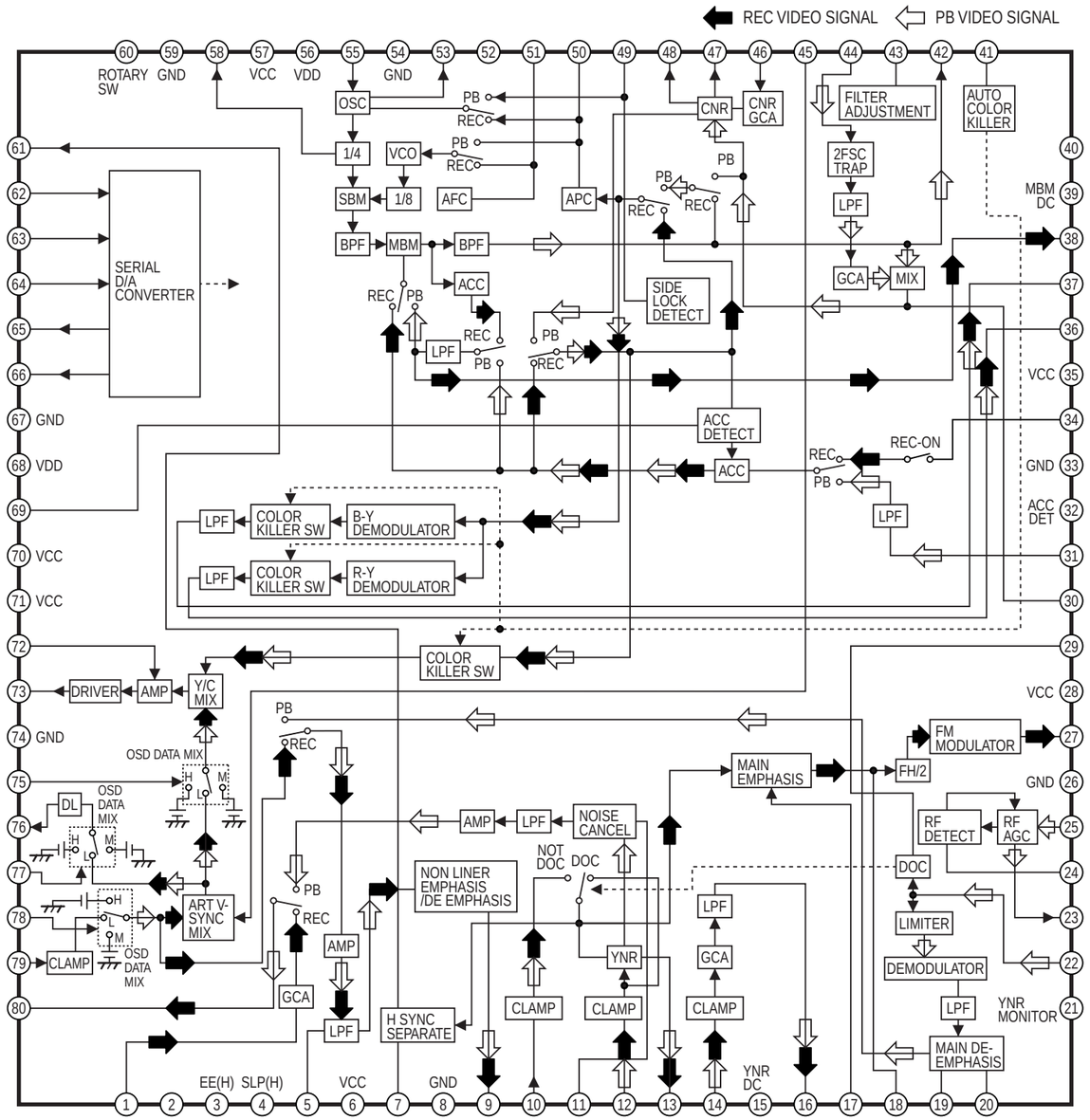
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SA1576A106R,
NPN TRANSISTORS IS 2SC4081T106R,
WATTAGE OF RESISTORS IS 1/16W.



IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN2401NFH

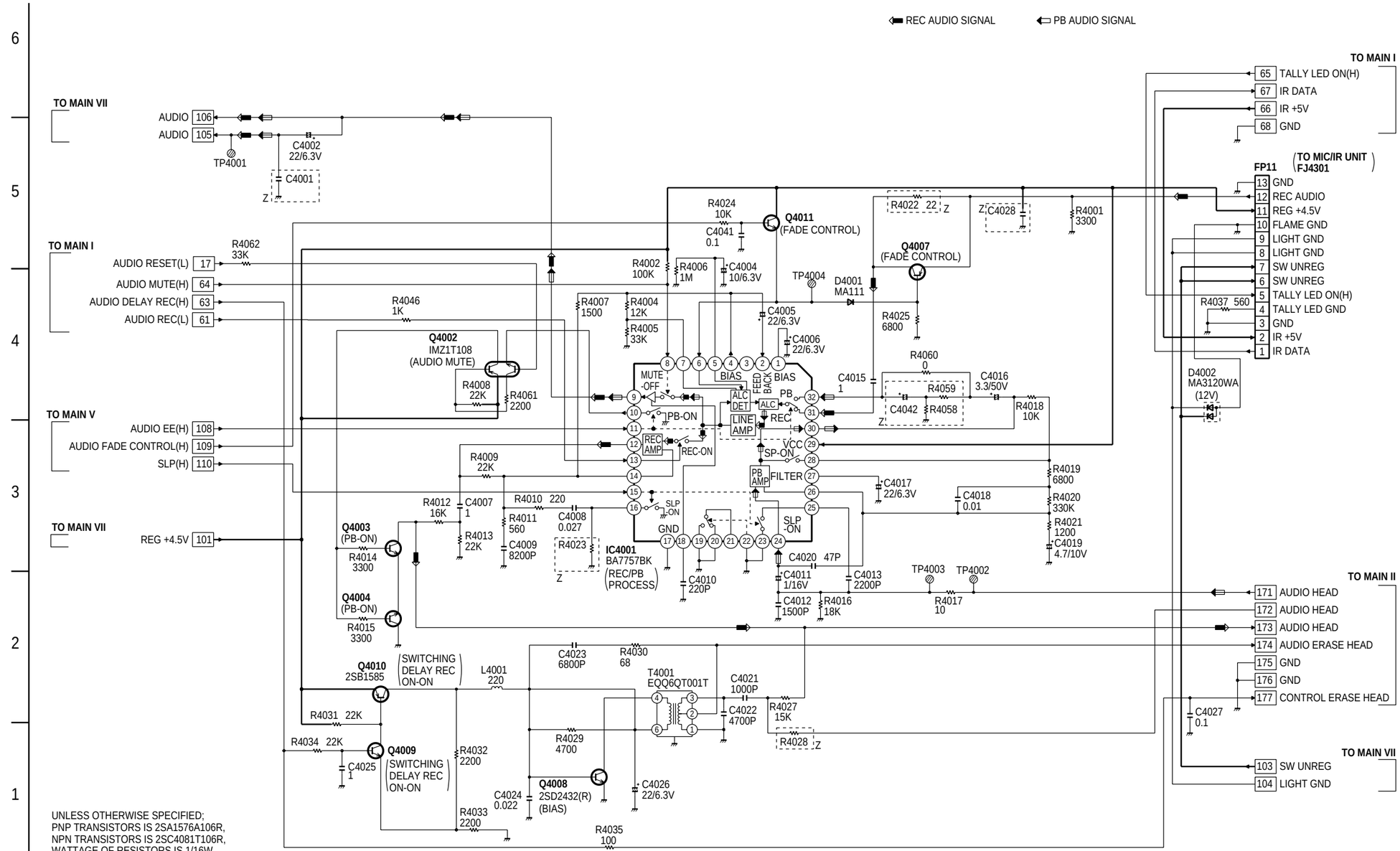


8.7. MAIN VI (AUDIO) SCHEMATIC DIAGRAM

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



8.8. MAIN VII (POWER SUPPLY) SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

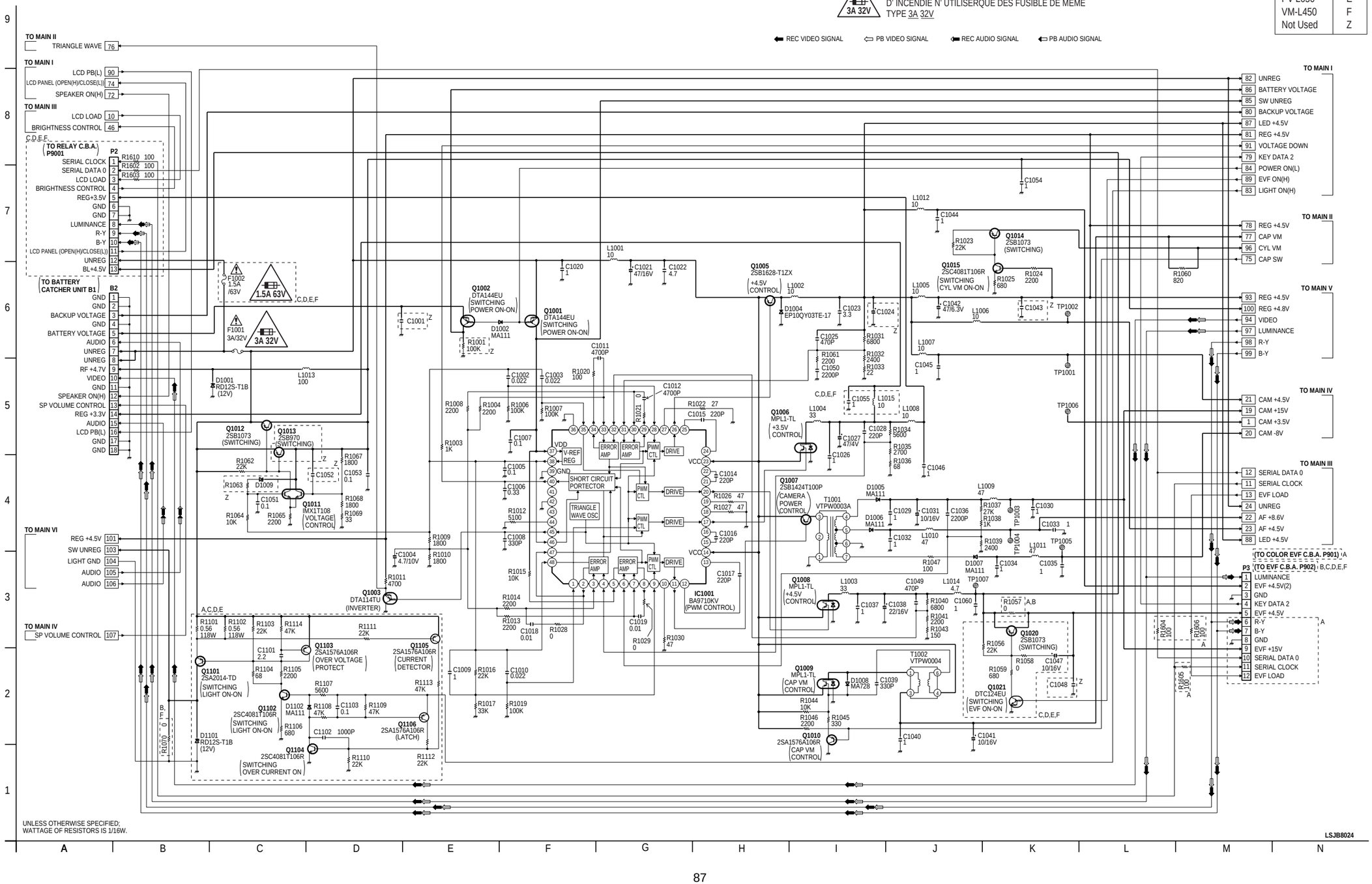
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.5A 63V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.5A 63V

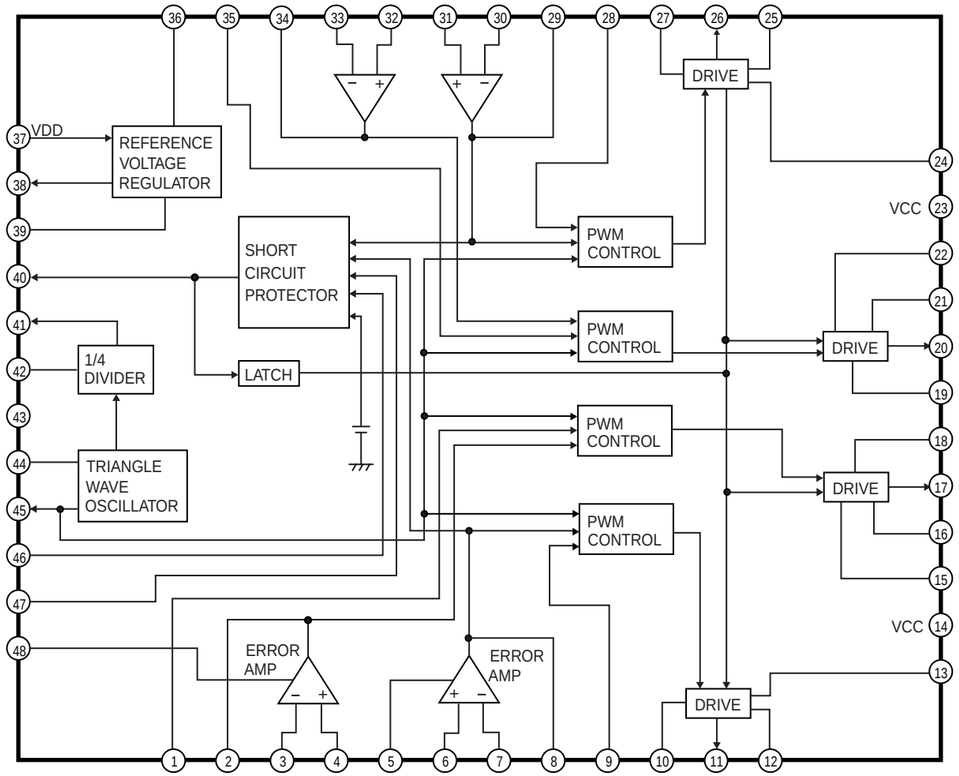
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 3A 32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME TYPE 3A 32V

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



IC1001 PWM CONTROL IC-DETAIL BLOCK DIAGRAM, BA9710KV

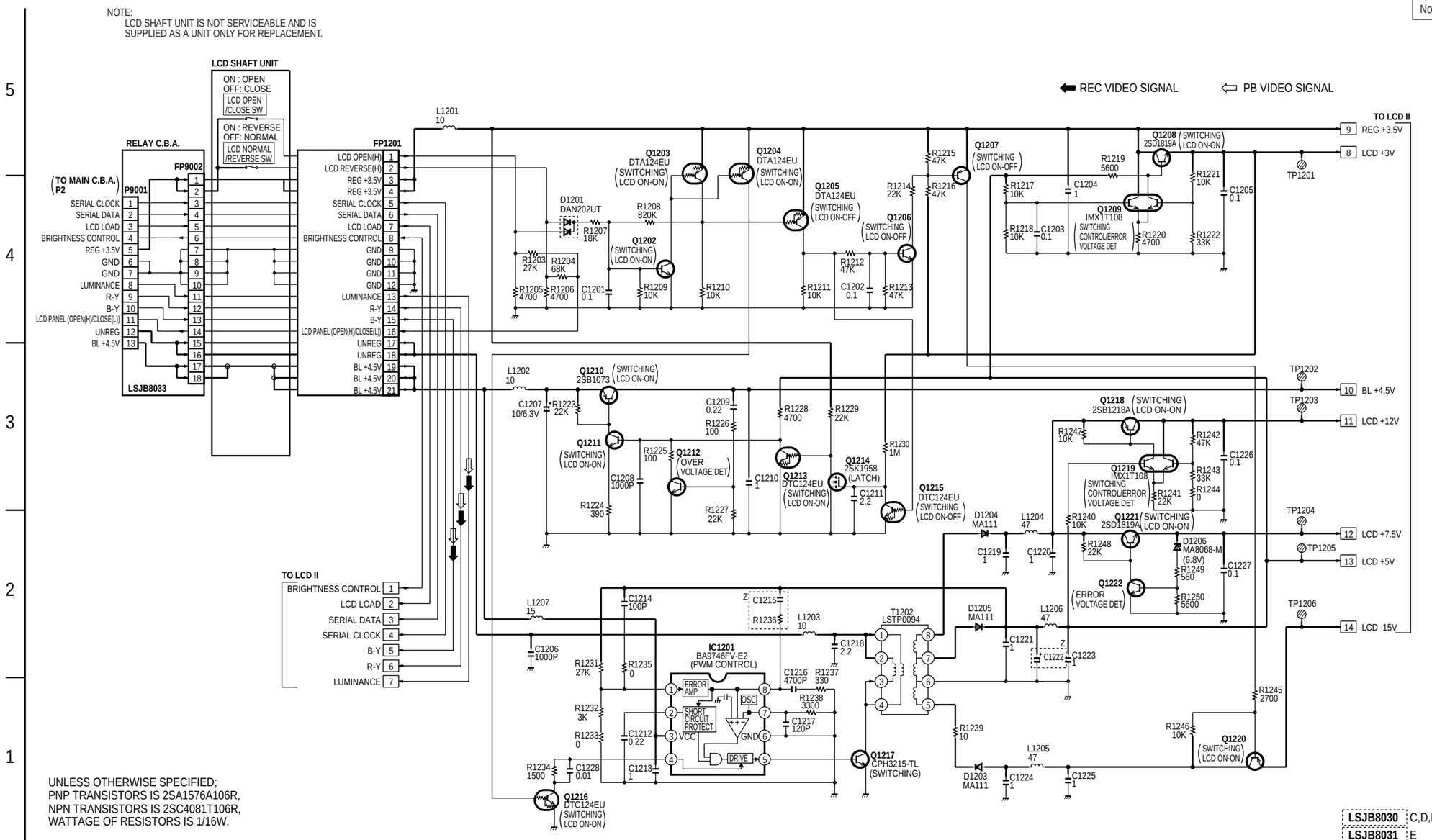


8.9. LCD I (LCD POWER) / RELAY SCHEMATIC DIAGRAM (C, D, E, F)

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



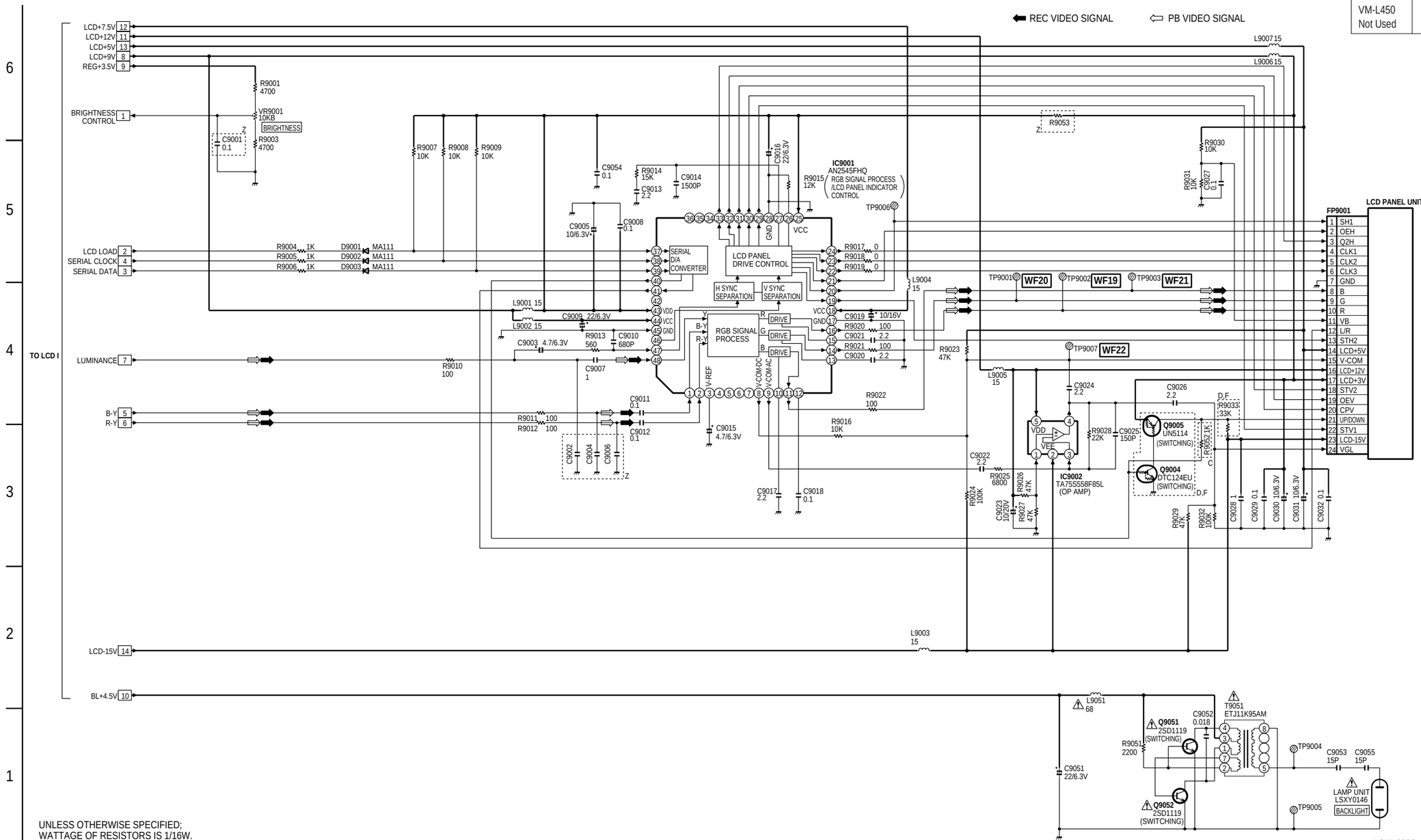
8.10. LCD II (LCD DRIVE) SCHEMATIC DIAGRAM (C, D, F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



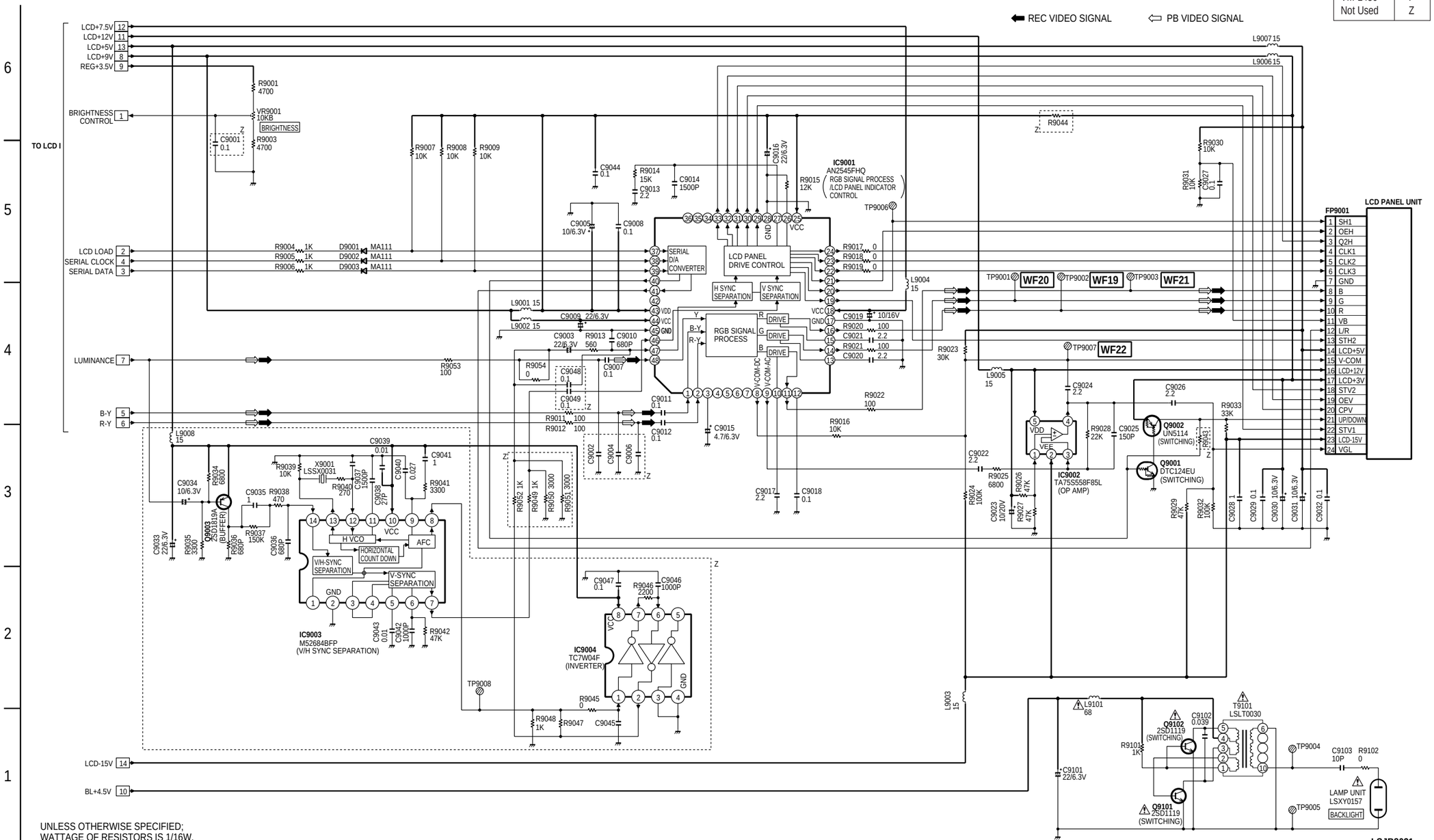
8.11. LCD II (LCD DRIVE) SCHEMATIC DIAGRAM (E)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

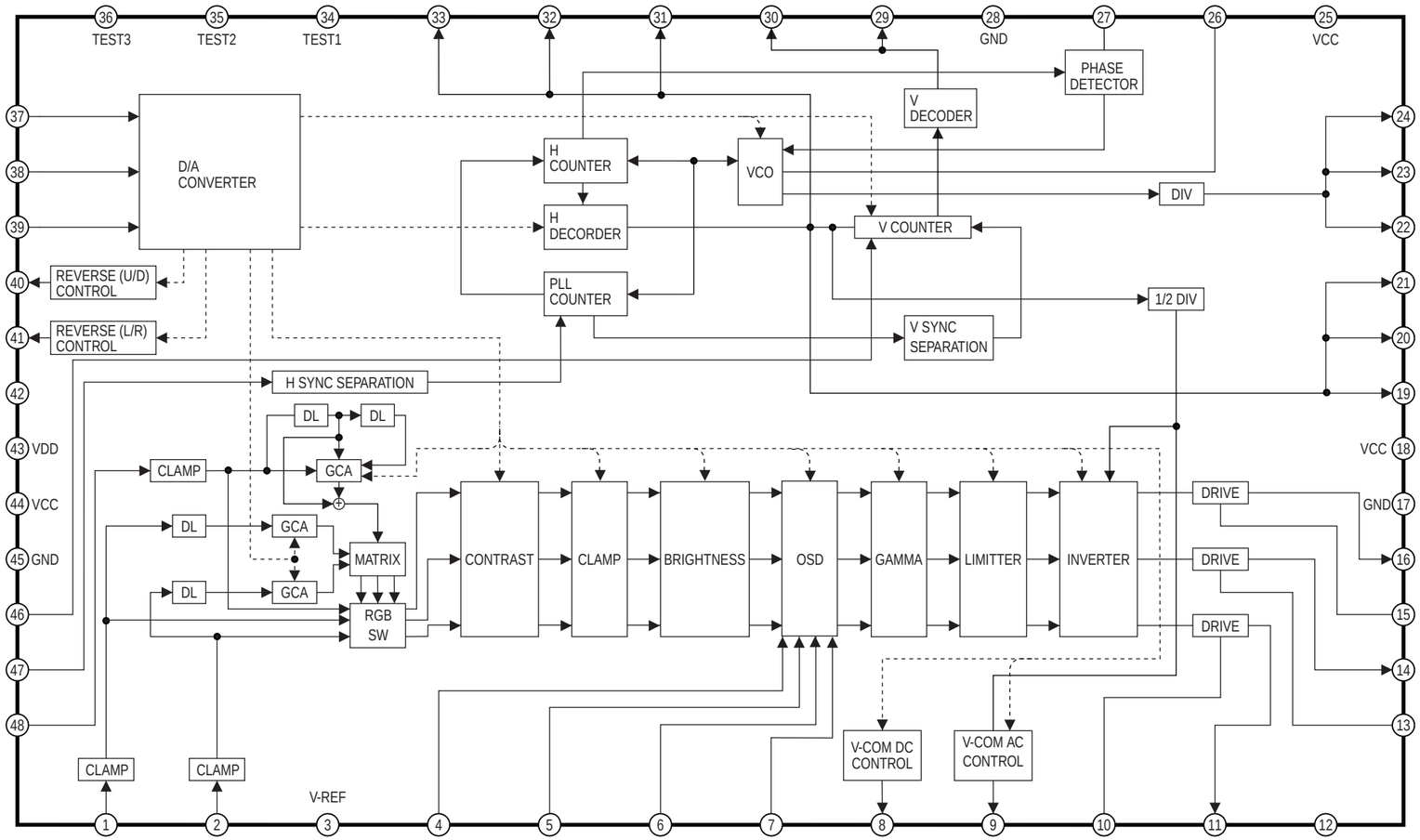
MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8031

IC9001 RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL IC-DETAIL BLOCK DIAGARM, AN2545FHQ



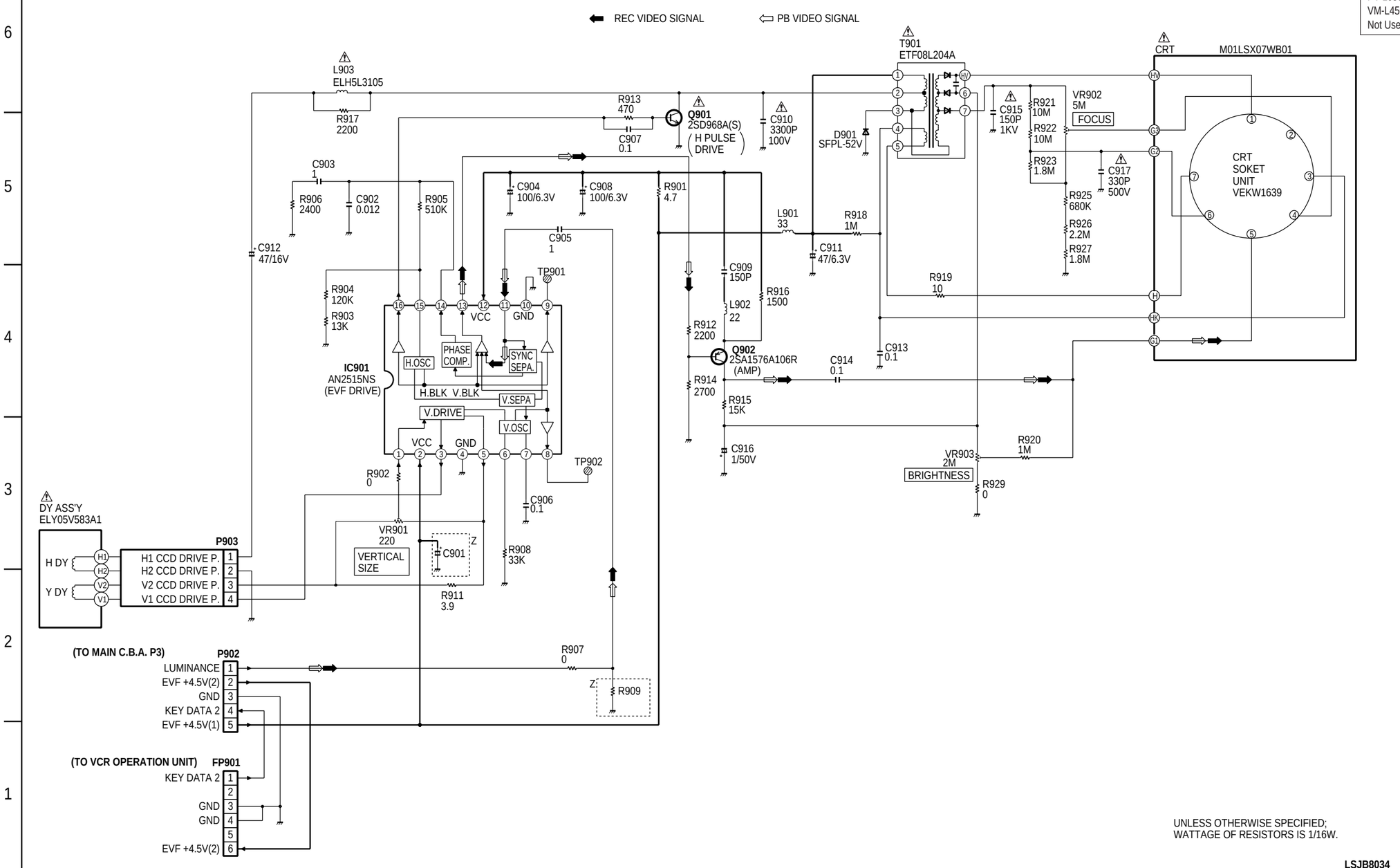
8.12. EVF SCHEMATIC DIAGRAM (B, C, D, E, F)

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8034

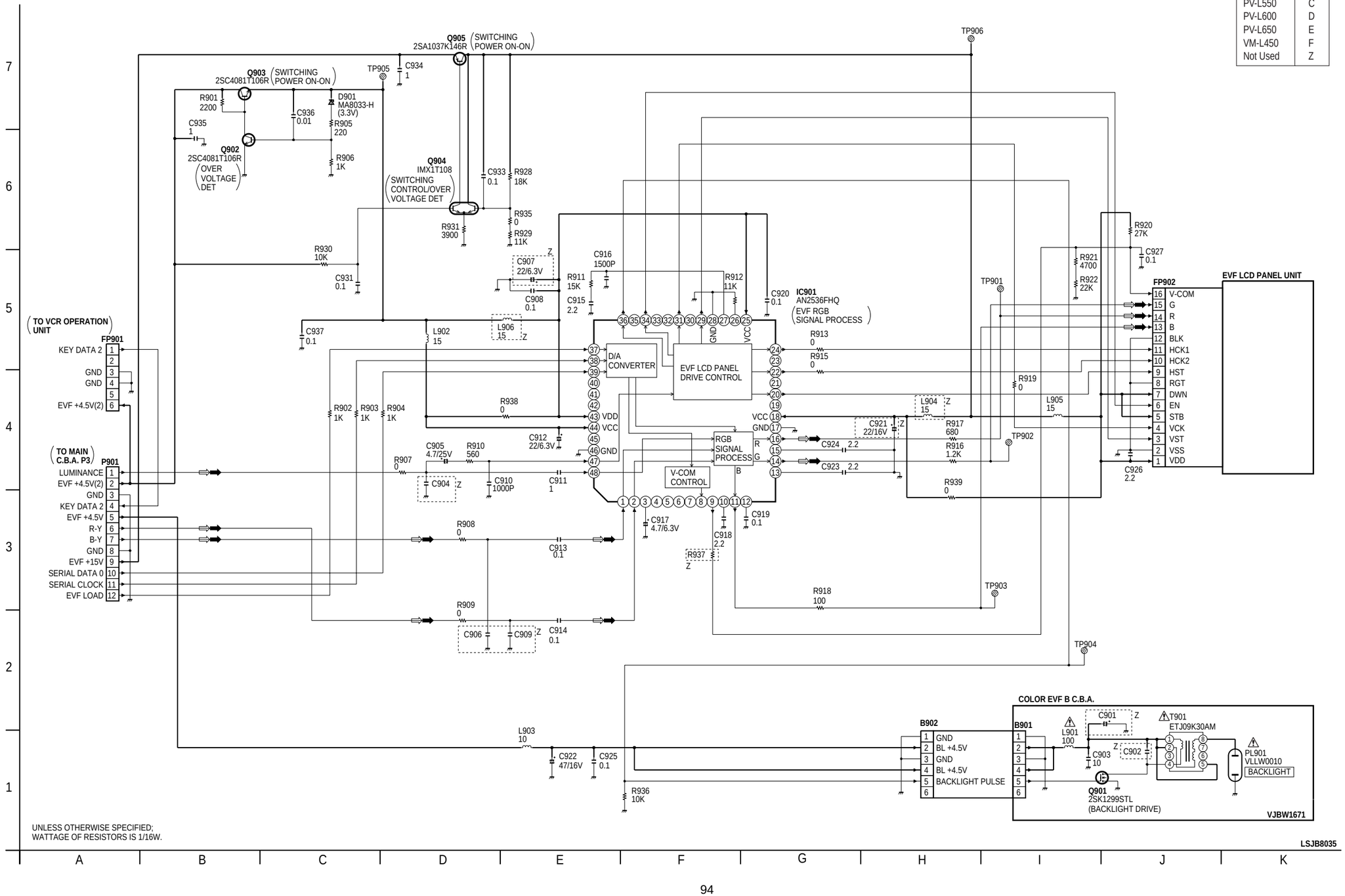
8.13. COLOR EVF SCHEMATIC DIAGRAM (A)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

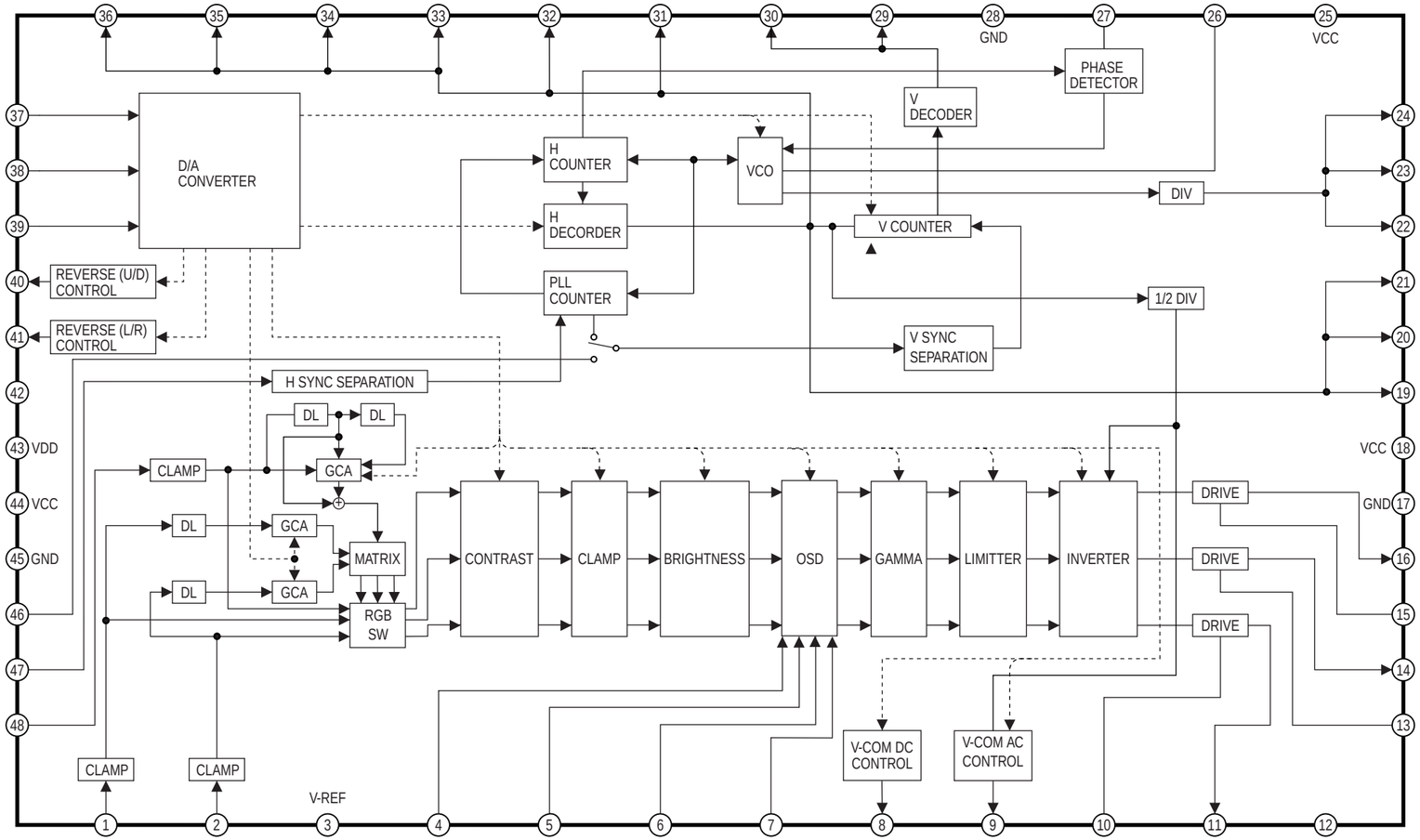
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



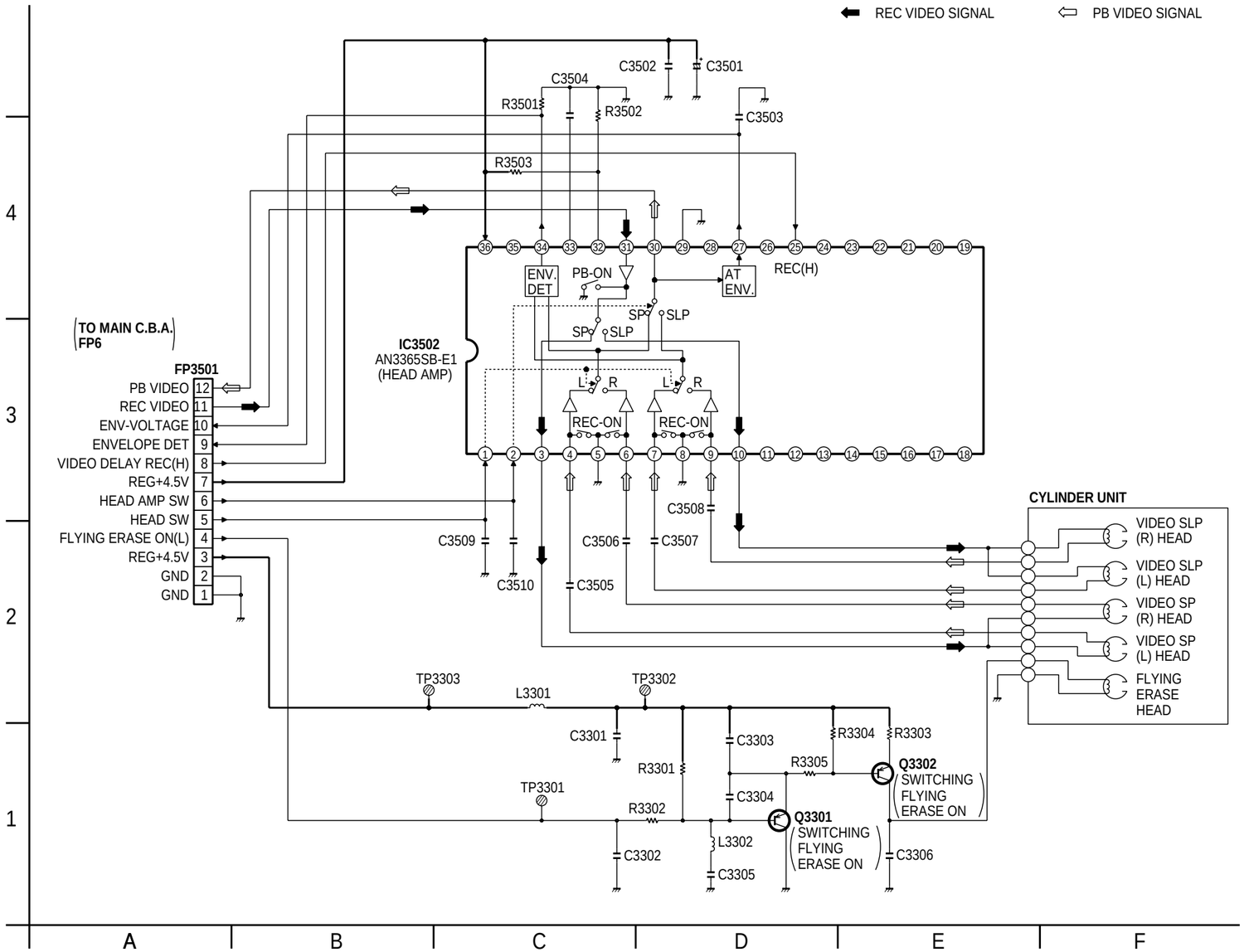
IC901 RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL IC-DETAIL BLOCK DIAGARM, AN2536FHQ



8.14. HEAD AMP SCHEMATIC DIAGRAM

NOTE:
HEAD AMP C.B.A. WHICH IS LOCATED ON THE LOWER CYLINDER IS SUPPLIED AS A CYLINDER UNIT ONLY. HOWEVER, IC3501 (AN3365SB-E1) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



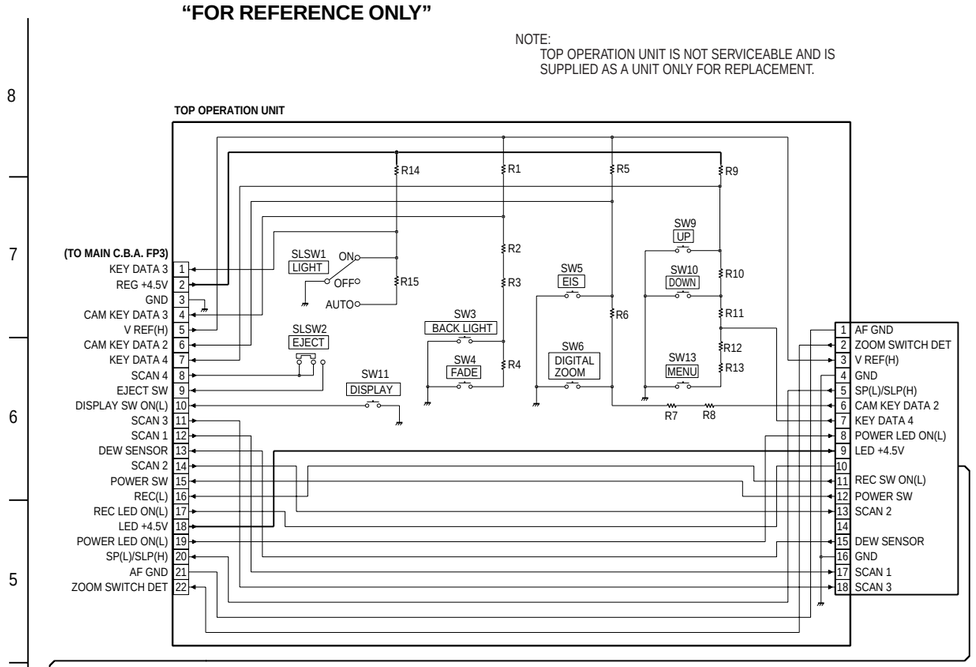
8.15. TOP OPERATION / SIDE L FPC / MF VR / VCR OPERATION / MECHANISM FPC SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

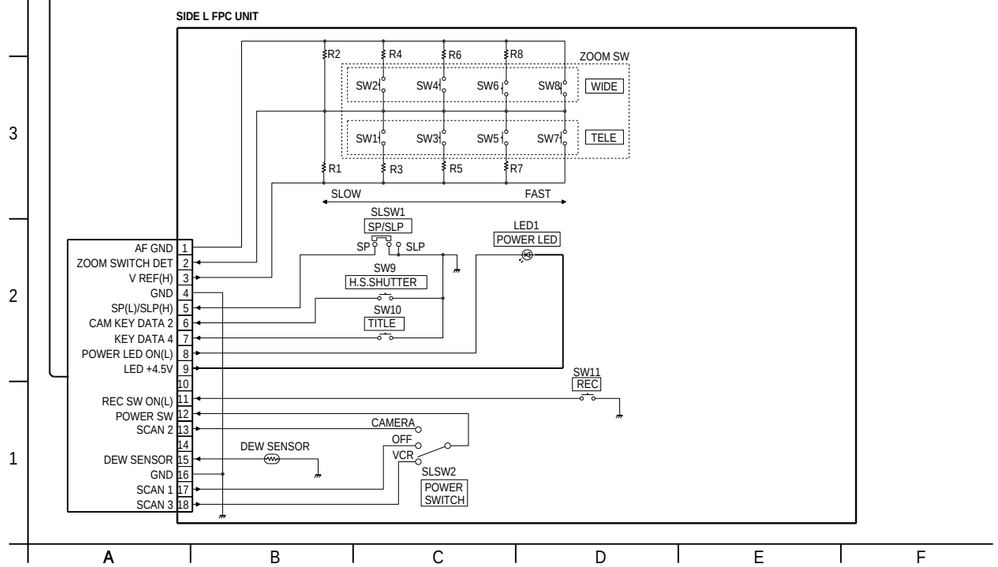
TOP OPERATION UNIT/SIDE L FPC UNIT

"FOR REFERENCE ONLY"

NOTE:
TOP OPERATION UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



NOTE:
SIDE L FPC UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



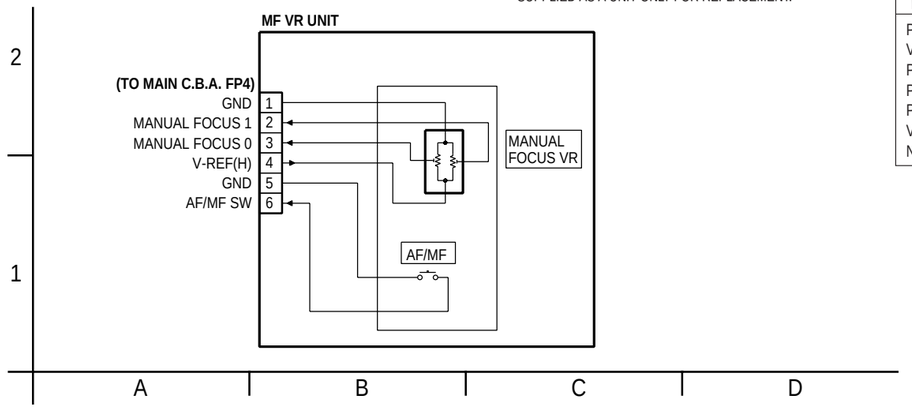
MF VR UNIT

"FOR REFERENCE ONLY"

NOTE:
MF VR UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

COMPARISON CHART OF MODELS & MARKS

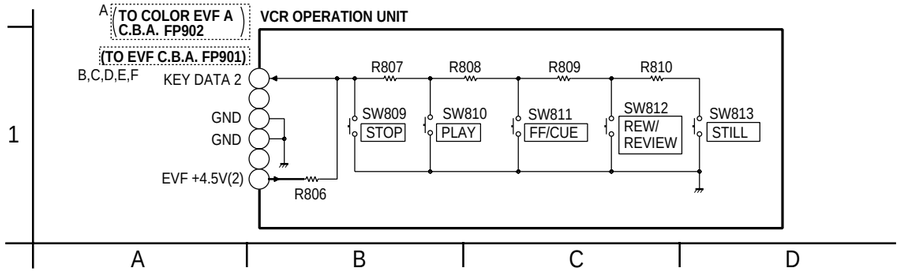
MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



VCR OPERATION UNIT

"FOR REFERENCE ONLY"

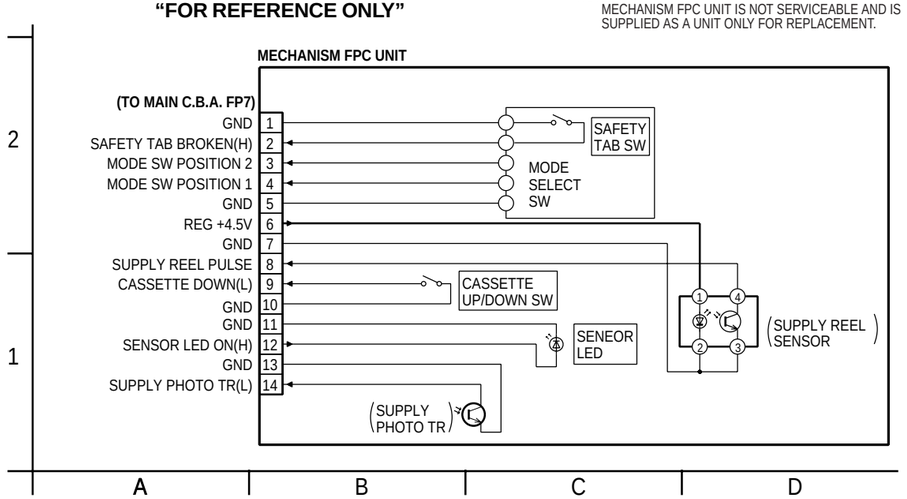
NOTE:
VCR OPERATION UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



MECHANISM FPC UNIT

"FOR REFERENCE ONLY"

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



8.16. MIC/IR / BATTERY CATCHER SCHEMATIC DIAGRAM

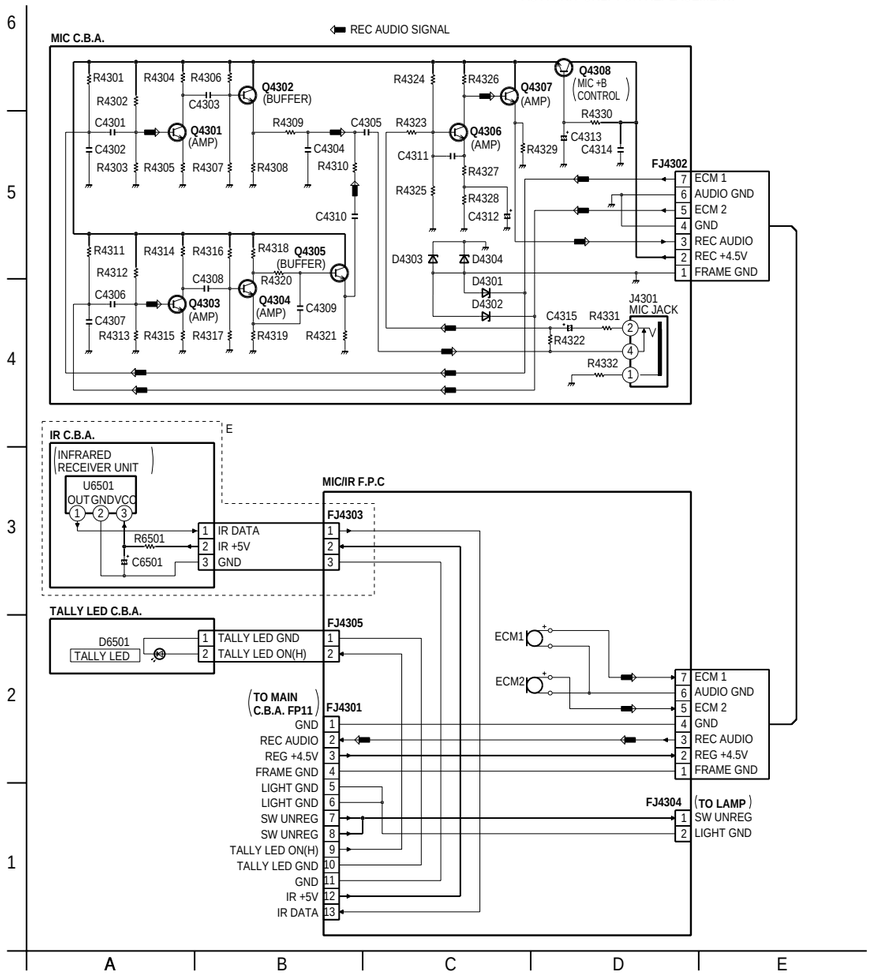
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

MIC/IR UNIT

"FOR REFERENCE ONLY"

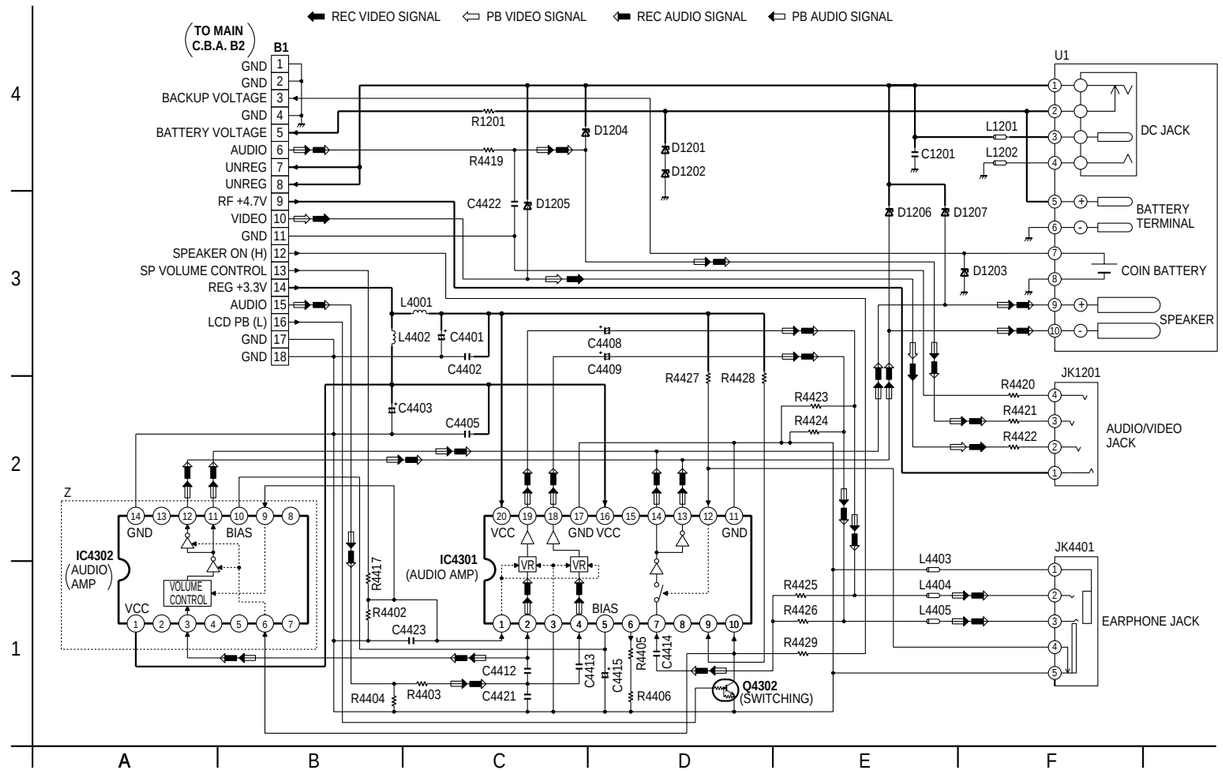
NOTE:
MIC/IR UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



BATTERY CATCHER

"FOR REFERENCE ONLY"

NOTE:
BATTERY CATCHER UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

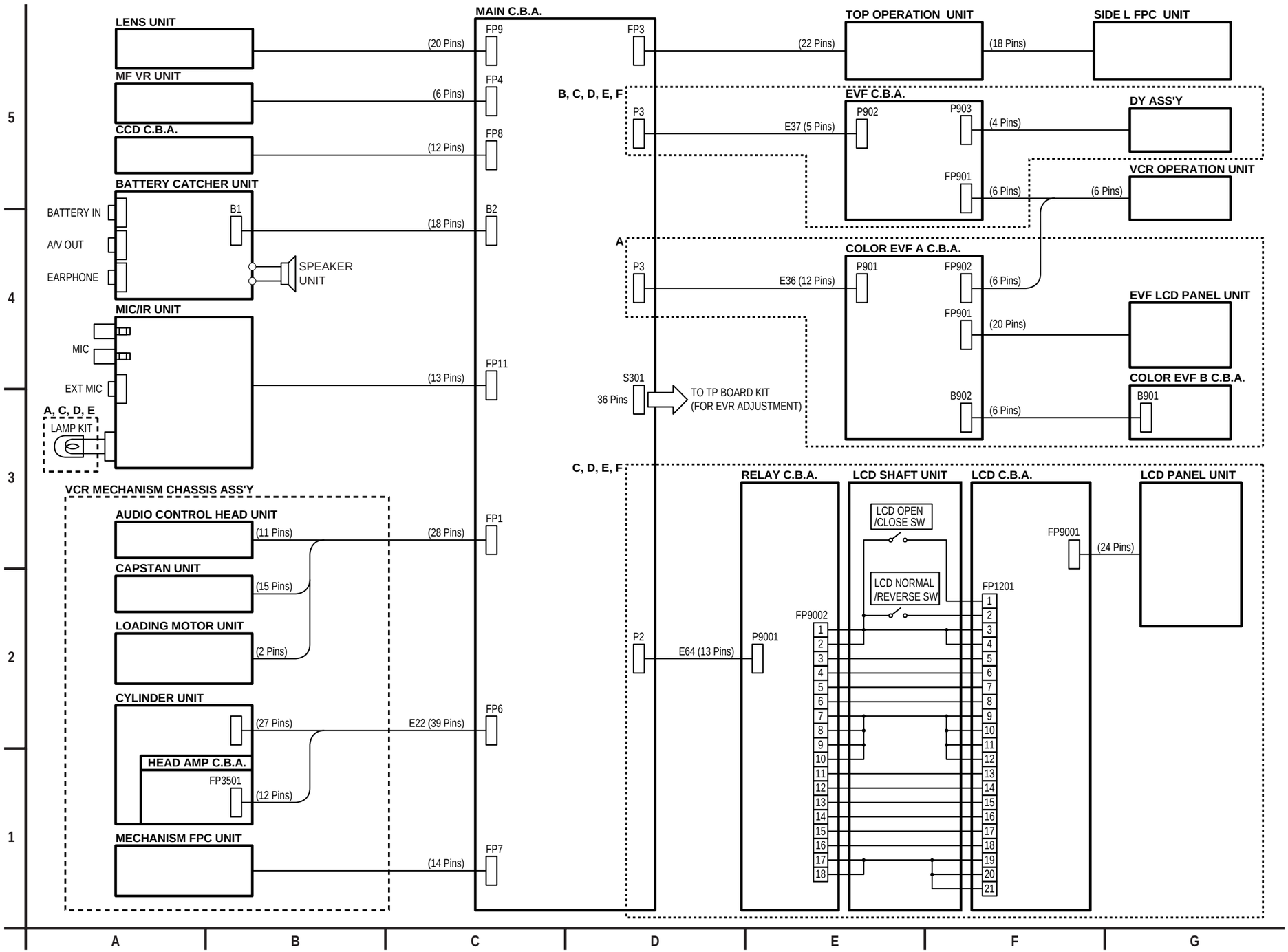


8.17. INTERCONNECTION SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

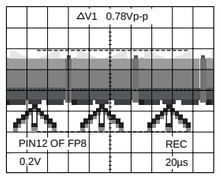
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

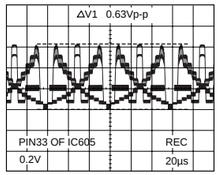


8.18. SIGNAL WAVEFORM

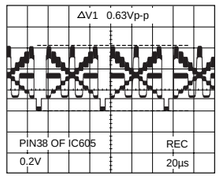
MAIN C.B.A.



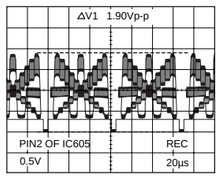
WF1



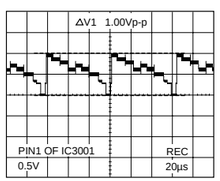
WF2



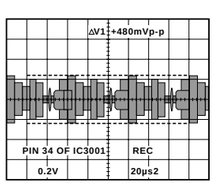
WF3



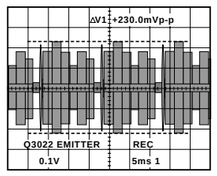
WF4



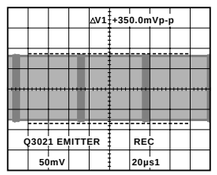
WF5



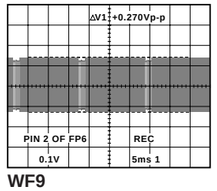
WF6



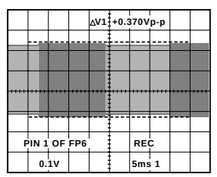
WF7



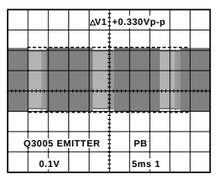
WF8



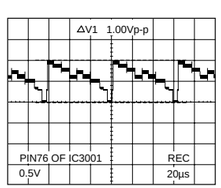
WF9



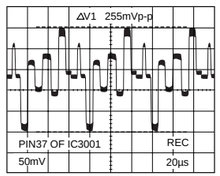
WF10



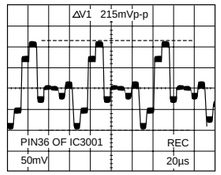
WF11



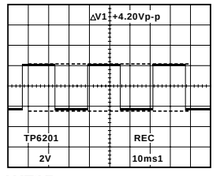
WF12



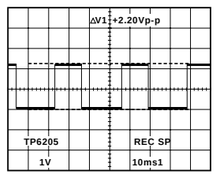
WF13



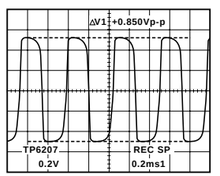
WF14



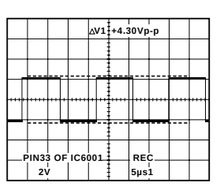
WF15



WF16

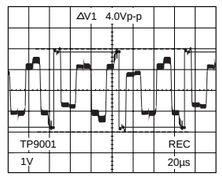


WF17

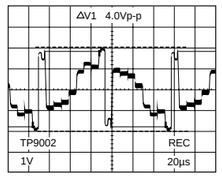


WF18

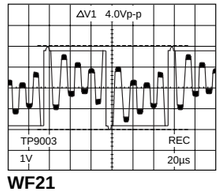
LCD C.B.A.



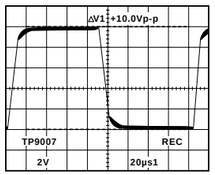
WF19



WF20



WF21



WF22

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

8.19. VOLTAGE CHART

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (CAMERA SECTION)

MODE / PIN NO.	CAMERA
IC301	
1	0.1
2	---
3	---
4	---
5	---
6	---
7	---
8	---
9	---
10	---
11	---
12	---
13	---
14	---
15	3.5
16	0
17	---
18	---
19	---
20	---
21	---
22	---
23	---
24	---
25	---
26	---
27	0
28	3.5
29	---
30	---
31	---
32	---
33	---
34	---
35	---
36	---
37	---
38	---
39	0
40	0
41	0
42	0
43	0
44	---
45	0.1
46	1.8
47	---
48	---
49	---
50	3.3
51	0
52	3.5
53	0
54	0.1
55	3.5
56	0
57	3.5
58	---
59	---
60	0
61	3.5
62	---
63	---
64	---
65	---
66	---
67	---
68	---
69	1.7
70	0
71	0
72	2.0
73	1.1
74	1.8
75	3.5
76	0
77	3.2
78	2.9
79	0
80	3.5
81	1.8
82	1.1
83	0
84	1.8
85	3.5
86	0
87	0
88	---
89	1.7
90	1.8
91	0
92	0
93	3.5
94	---
95	---
96	3.5
97	0.1
98	1.1
99	3.2
100	0
101	0.2
102	0.4
103	3.5
104	3.5
105	---
106	0
107	3.5
108	1.8
109	3.5
110	1.4
111	3.3
112	1.9
113	0
114	3.5
115	0.4
116	0.4
117	0.2
118	0.3
119	0
120	3.5
121	0.4
122	0.2
123	3.5
124	0.8
125	1.5
126	2.8
127	0.5
128	0.6
129	0.8
130	1.7
131	0.8
132	2.2
133	0.5
134	0
135	3.6
136	1.0
137	---
138	1.7
139	0
140	0
141	0
142	0
143	0
144	0
IC306	
1	---
2	3.5
3	0.3
4	3.5
5	3.5
6	0.7
7	0.4
8	3.5
IC308	
1	
2	0.1
3	---
4	---
5	2.8
6	1.5
7	0.8
8	3.5
9	0.2
10	0
11	0
12	0.2
13	3.5
14	---
15	0.4
16	3.4
17	3.5
18	1.6
19	0
20	0
21	3.4
22	---
23	1.0
24	1.8
25	3.5
26	0
27	3.5
28	0
29	0
30	0.8
31	1.9
32	0.7
33	0.7
34	---
35	---
36	0.6
37	0.7
38	0.8
39	0
40	0
41	3.5
42	3.5
43	3.5
44	0.8
45	0.8
46	0.9
47	0
48	0.5
49	3.3
50	2.8
51	2.6
52	0.4
53	0.4
54	---
55	---
56	3.5
57	3.2
58	0
59	0
60	0
61	0
62	1.8
63	2.7
64	0.9
65	1.0
66	3.5
67	0
68	1.9
69	3.5
70	1.7
71	0.2
72	3.5
73	3.2
74	3.2
75	---
76	0.2
77	0
78	0
79	0.6
80	0.6
81	0
82	3.4
83	3.5
84	3.5
85	3.5
86	---
87	0
88	0
89	0
90	0
91	0
92	0
93	---
94	3.5
95	---
96	---
97	0
98	0
99	0
100	0
IC309	
1	2.8
2	1.5
3	1.9
4	8.1
5	1.3
6	1.4
7	1.4
8	2.5
9	0.9
10	1.2
11	0
12	0.7
13	0.7
14	0.3
IC602	
1	0
2	1.7
3	1.7
4	0.4
5	1.6
6	1.5
7	---
8	0.7
9	0.7
10	0.6
11	0.6
12	0.9
13	0.2
14	0.4
15	0.1
16	---
17	0.4
18	0.2
19	---
20	3.2
21	---
22	1.2
23	0
24	0
25	3.5
26	3.5
27	0.2
28	0.2
29	3.3
30	0.4
31	3.5
32	3.5
33	3.5
34	0
35	1.0
36	0.3
37	0.3
38	3.5
39	---
40	0
41	---
42	0.7
43	1.1
44	0.1
45	0.2
46	0.2
47	1.5
48	---
49	1.6
50	0.3
51	---
52	---
53	---
54	---
55	---
56	3.5
57	3.5
58	1.6
59	1.6
60	---
61	3.5
62	3.5
63	3.5
64	3.5
IC603	
1	-8.1
2	-8.0
3	-0.2
4	0
5	0.4
6	3.5
7	0.1
8	3.5
9	0.1
10	3.5
11	---
12	3.3
13	3.5
14	3.3
15	0
16	15.0
17	-7.6
18	-7.6
19	0
20	15.0
IC605	
1	0
2	1.9
3	---
4	---
5	1.7
6	4.4
7	1.8
8	1.9
9	1.8
10	3.5
11	0.2
12	0
13	---
14	---
15	---
16	---
17	3.3
18	1.7
19	3.3
20	1.2
21	0.3
22	0.2
23	---
24	0.7
25	0.1
26	0
27	0.4
28	2.7
29	4.4
30	---
31	2.1
32	---
33	2.0
34	2.0
35	0
36	4.4
37	0.3
38	2.1
39	2.1
40	4.4
41	0
42	2.5
43	2.7
44	2.4
45	0.1
46	2.0
47	3.3
48	0.4
IC701	
1	0.2
2	0.4
3	---
4	0.9
5	0.9
6	0.1
7	0.2
8	0.5
9	0
10	0.5
11	0.5
12	0
13	0.5
14	7.2
IC702	
1	0.1
2	0.1
3	0.5
4	0.7
5	0.9
6	0.1
7	0.1
8	0.5
9	0
10	0.6
11	0.6
12	0
13	0.6
14	7.2
Q301	
E	2.5
C	4.5
B	3.2
Q302	
E	1.5
C	3.2
B	2.2
Q303	
E	1.8
C	0
B	1.2
Q305	
E	3.0
C	4.5
B	3.1
Q306	
E	2.2
C	4.5
B	2.9
Q307	
E	2.6
C	4.5
B	3.1
Q310	
E	3.4
C	4.5
B	2.2
Q311	
E	2.0
C	4.5
B	2.7
Q617	
E	1.3
C	4.4
B	1.9
Q703	
E	0
C	3.3
B	1.6
TP601	1.6

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE / PIN NO.	REC	PLAY
IC1001		
1	0.2	0.1
2	1.7	1.7
3	1.2	1.3
4	1.3	1.2
5	1.0	5.6
6	1.3	1.3
7	1.2	1.2
8	2.1	1.9
9	1.5	1.4
10	0.2	0.2
11	6.9	6.9
12	7.3	7.3
13	3.9	4.0
14	7.0	7.1
15	2.4	2.4
16	6.9	6.9
17	6.6	6.7
18	0.4	0.4
19	0.5	0.5
20	6.5	6.6
21	6.8	6.7
22	1.8	1.8
23	7.1	7.1
24	1.9	1.9
25	6.8	6.6
26	6.5	6.5
27	0.4	0.4
28	0.2	0.2
29	1.6	1.6
30	0.9	1.2
31	1.2	1.2
32	1.2	0.2
33	0.9	0.2
34	1.0	1.5
35	1.0	0.1
36	1.0	0
37	6.9	7.0
38	2.4	2.4
39	0	0
40	0	0
41	---	---
42	0	0
43	---	---
44	1.0	1.0
45	1.6	1.6
46	2.4	2.4
47	1.7	1.6
48	0	2.4
IC3001		
1	1.7	2.6
2	---	---
3	3.7	0.1
4	0.1	0.1
5	2.1	1.9
6	4.5	4.5
7	2.0	2.3
8	0	0
9	2.1	0.3
10	2.1	2.1
11	0.3	1.1
12	0	2.1
13	1.5	2.2
14	2.0	2.2
15	2.7	1.6
16	0.2	2.2
17	2.2	2.1
18	2.2	2.1
19	2.5	3.0
20	2.1	1.5
21	2.2	2.7
22	2.7	2.5
23	3.4	2.0
24	2.7	2.9
25	2.5	2.8
26	0	0
27	3.2	3.6
28	4.4	4.4
29	2.3	2.3
30	0	2.1
31	2.1	2.0
32	2.9	3.0
33	0	0
34	2.4	2.9
35	4.5	4.5
36	2.5	2.5
37	2.5	2.5
38	0.3	0.4
39	2.8	2.7
40	0.2	2.3
41	1.3	1.3
42	0.8	2.2
43	3.0	3.0
44	0.9	2.8
45	0.2	0.2
46	---	---
47	---	---
48	---	---
49	1.8	1.9
50	2.0	2.0
51	2.1	2.0
52	4.5	4.5
53	2.2	2.2
54	0	0
55	2.7	2.7
56	1.2	3.6
57	4.5	4.1
58	3.0	3.0
59	0	0
60	4.3	2.7
61	0.5	0.5
62	0	0.4
63	4.5	4.5
64	4.5	4.5
65	0.3	1.9
66	---	---
67	0.6	0
68	3.6	3.6
69	2.1	3.6
70	4.5	4.5
71	4.5	4.5
72	1.8	4.5
73	2.1	2.8
74	0	0
75	0.6	0.2
76	2.3	3.7
77	0.3	0.1
78	0.1	0.1
79	2.5	2.9
80	2.1	2.8
IC3002		
1	1.0	2.1
2	0	0
3	4.5	4.5
4	1.9	2.8
5	0	0
6	1.8	2.6
7	1.6	1.6
8	2.8	2.8
9	4.5	4.5
10	0	0
11	2.5	2.8
12	2.4	2.5
13	1.8	2.9
14	0	0
15	2.5	2.7
16	4.5	4.5
17	0	0
18	2.0	2.2
19	2.3	2.3
20	0.9	2.0
IC4001		
1	2.2	2.3
2	2.3	2.3
3	---	---
4	2.3	2.3
5	0.6	0
6	0.2	1.3
7	1.7	1.7
8	0.1	0.1
9	2.3	2.3
10	4.0	3.7
11	3.7	0
12	2.3	2.3
13	0	4.5
14	2.3	2.3
15	0.1	0
16	0.1	1.4
17	1.2	0
18	2.9	2.7
19	0	0
20	0	0
21	---	---
22	0	0
23	0	0
24	1.7	1.7
25	0.4	1.1
26	1.6	1.7
27	4.5	4.5
28	1.7	1.7
29	4.5	4.5
30	1.7	1.7
31	2.3	2.3
32	2.3	2.3
Q1001		
E	7.2	7.1
C	7.1	7.0
B	0.1	0.1
Q1002		
E	0	0
C	0	0
B	-0.6	-0.6
Q1003		
E	2.3	2.3
C	0	0
B	1.6	1.6
Q1005		
E	7.2	7.1
C	4.5	4.5
B	6.7	6.6
Q1006		
E	7.2	0
C	3.6	3.6
B	6.8	0
A	0	0
Q1007		
E	0	0.1
C	0	0.1
B	7.0	6.9
Q1008		
E	7.2	7.1
C	4.6	4.6
B	6.6	6.6
A	0	0
Q1009		
E	6.1	0.1
C	1.6	0.1
B	6.8	6.7
A	0	0
Q1010		
E	5.9	5.6
C	0	0
B	6.1	5.9
Q1011		
E1	1.9	1.9
C1	6.6	6.5
B1	2.4	1.3
E2	1.9	1.4
C2	0.2	4.8
B2	0.1	2.5
Q1012		
E	7.2	7.1
C	4.8	4.8
B	6.6	6.5
Q1014		
E	7.2	7.0
C	7.1	7.0
B	1.5	6.3
Q1015		
E	3.9	3.8
C	6.5	6.3
B	4.5	4.5
Q1020		
E	4.6	4.6
C	0	2.0
B	4.6	4.6
Q1021		
E	0	0
C	4.6	4.4
B	0.1	0.9
Q1101		
E	7.2	7.1
C	1.7	1.5
B	7.2	7.1
Q1102		
E	0	0
C	7.8	7.1
B	-0.1	0
Q1103		
E	7.2	7.1
C	7.2	7.1
B	7.2	0.1
Q1104		
E	0	0
C	0	0.1
B	0	0
Q1105		
E	7.2	7.1
C	0	0.7
B	7.2	0.3
Q1106		
E	0	0
C	0.2	0
B	0.1	0
Q3003		
E	4.1	2.6
C	0	1.6
B	4.3	2.0
Q3004		
E	0	1.9
C	3.4	3.8
B	3.3	2.6
Q3005		
E	0	3.2
C	4.5	4.5
B	3.4	3.8
Q3021		
E	1.2	1.2
C	4.8	4.8
B	1.7	1.7
Q3022		
E	1.7	0.1
C	4.8	4.8
B	2.3	0.4
Q3027		
E	1.7	1.8
C	4.8	4.8
B	2.3	2.3
Q3028		
E	1.9	1.9
C	4.5	4.5
B	2.5	2.5
Q3029		
E	1.9	1.9
C	4.5	4.6
B	2.5	2.5
Q4002		
E1	5.3	3.5
C1	4.4	3.6
B1	4.6	3.8
E2	4.5	4.0
C2	1.4	4.5
B2	4.6	4.5
Q4003		
E	0.2	0
C	0	0
B	0.5	0.8
Q4004		
E	0.2	0
C	0	0
B	-0.5	0.8
Q4007		
E	0	0
C	-0.2	-0.5
B	0.1	1.1
Q4008		
E	0	0
C	0	0
B	0	0
Q4009		
E	0	0.4
C	0.2	4.3
B	0.2	0.1
Q4010		
E	4.6	4.5
C	0	0
B	4.3	5.0
Q4011		
E	0.2	1.4
C	4.5	4.5
B	0.2	1.9
TP1001	4.6	4.6
TP1002	4.6	4.6
TP1003	15.0	15.0
TP1004	8.1	8.2
TP1005	-8.1	-8.1
TP1006	3.6	3.6
TP1007	4.6	4.6
TP3001	2.7	2.7
TP3002	2.6	2.5
TP3003	0.4	2.0
TP3004	2.9	3.9
TP3005	3.2	3.6
TP3006	2.6	0.4
TP4001	1.4	1.4
TP4002	0	0
TP4003	0	0.1
TP4004	0.1	1.3

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY	STOP
IC2001			
1	2.2	2.0	2.0
2	0.6	0.6	0.1
3	0.6	0.7	0.1
4	2.9	3.0	2.9
5	0	0	0
6	0	0	0
7	0.1	0.1	4.6
8	2.3	2.3	2.3
9	2.3	2.3	2.3
10	2.2	2.2	2.3
11	2.3	2.3	2.3
12	2.3	2.3	2.3
13	1.8	2.3	2.3
14	7.1	7.0	7.3
15	1.6	1.9	0
16	2.1	2.0	0
17	1.6	1.9	0
18	0.4	0.9	0.7
19	0.6	0.5	0.7
20	0.4	0.7	0.1
21	6.8	6.6	6.8
22	6.7	6.5	6.8
23	6.7	6.6	6.8
24	0.6	0.6	0.1
25	0.4	0.6	0.1
26	0.4	1.3	0
27	1.6	1.1	4.2
28	1.7	7.0	4.2
29	1.6	2.0	4.3
30	0.7	2.0	0
31	0.7	0.9	0
32	0.7	0.9	0
33	1.6	1.8	6.5
34	2.2	2.2	2.2
35	2.2	0.7	2.2
36	1.8	0.8	1.7
37	1.7	0.8	1.7
38	1.2	1.2	1.2
39	1.2	1.2	1.2
40	0.1	0.7	2.3
41	0	0	0
42	0	0	0
43	0	0.1	0
44	2.4	0.6	4.2
45	0.7	0.7	0.1
46	0.6	0.6	0
47	0.3	0.6	0.2
48	2.2	2.1	2.3
49	6.0	5.4	7.2
50	2.3	2.3	2.3
51	0	0	0
52	4.5	4.5	4.5
53	2.2	1.6	0.7
54	---	---	---
55	0.6	0.7	0.7
56	0	0	0
57	2.3	2.3	2.3
58	2.3	2.3	2.3
59	2.3	1.3	1.9
60	2.3	2.3	2.3
61	2.1	2.2	2.3
62	---	---	---
63	---	---	---
64	---	---	---
IC2002			
1	0.7	0.9	0
2	1.4	4.9	3.4
3	0.7	0.9	0.3
4	1.4	1.1	3.4
5	0.7	0.9	0
6	1.3	4.2	3.4
7	1.6	1.1	6.4
8	0.7	1.1	0
9	0.5	0.8	0.1
10	0.7	0.9	0
11	0.5	0.4	0.1
12	0.7	0.9	0
13	0.4	0.4	0.1
14	0	0	0
IC2003			
1	0	1.9	0
2	6.8	2.5	6.8
3	0	4.6	0.3
4	6.8	8.9	6.8
5	0	2.0	0
6	6.8	9.2	6.8
7	7.2	7.0	7.2
8	0	1.9	0
9	0.7	0.4	0.7
10	0	1.9	0
11	0.7	0.9	0.7
12	0	2.0	0
13	0.7	0.4	0.7
14	0	0	0
IC6001			
1	2.7	2.7	3.7
2	4.5	2.2	3.3
3	4.1	4.6	0.3
4	0.3	0.3	0.3
5	3.2	3.3	3.3
6	4.5	4.5	4.5
7	0.1	0.1	0.1
8	0.1	0.1	0.1
9	3.7	3.7	0.2
10	3.8	0.1	0
11	3.5	4.6	3.5
12	1.8	1.5	1.2
13	0.1	0.1	0.1
14	4.5	4.5	4.5
15	4.2	4.5	3.7
16	4.6	4.5	4.6
17	4.5	4.4	4.5
18	0.1	0.1	0
19	0.1	0.1	4.6
20	2.5	0.1	4.5
21	0.1	0.1	2.3
22	0.1	0.1	0.1
23	4.6	2.3	4.6
24	0.1	0.1	0.1
25	4.4	4.5	4.6
26	4.6	0	0.1
27	4.6	0	0
28	---	---	---
29	0	4.5	4.6
30	0.3	0.3	0.2
31	---	---	---
32	4.6	0	4.6
33	2.2	2.0	2.3
34	2.8	0	3.7
35	---	---	---
36	4.6	4.5	4.6
37	2.3	2.3	1.5
38	1.6	2.3	2.3
39	0	0	0
40	0.3	0.8	0.8
41	---	---	---
42	4.6	4.5	4.6
43	4.1	0	3.9
44	4.6	0	1.6
45	0	0	1.5
46	---	---	---
47	4.6	4.5	4.6
48	0	0	0
49	4.6	0	0
50	2.1	0	3.0
51	4.6	4.5	4.6
52	2.3	0	2.2
53	2.3	2.3	2.3
54	---	---	---
55	0	0	0
56	0.1	0	4.6
57	0.1	1.4	0
58	0.1	0	0.1
59	0	0	0
60	0.1	0	0.1
61	0.3	1.4	0.1
62	3.2	4.1	3.5
63	0.1	0.1	0.3
64	0.3	0.3	4.2
65	2.2	2.2	0.4
66	0.7	0.78	0.4
67	2.3	2.3	2.3
68	2.3	2.3	2.3
69	2.3	1.4	2.3
70	2.1	2.3	2.3
71	0	0	0
72	1.0	1.1	2.3
73	4.6	4.6	4.6
74	2.7	2.2	2.3
75	2.0	2.2	2.3
76	2.3	3.8	2.3
77	0.2	0.1	0.1
78	4.0	4.4	4.4
79	2.1	2.1	2.4
80	2.4	3.9	0.4
81	3.9	4.5	4.3
82	3.8	0	4.3
83	0.2	0.1	0.1
84	3.9	4.0	4.4
85	3.7	4.0	4.1
86	0.3	3.5	3.1
87	6.2	1.1	0.1
88	0.1	0.1	0.1
89	0.6	4.5	0.7
90	2.4	1.6	4.0
91	0.3	4.6	0.1
92	0.1	4.6	4.6
93	0.4	0.1	0.5
94	4.5	0.1	4.6
95	4.5	4.5	4.6
96	4.5	0.1	4.6
97	4.6	0.1	4.6
98	2.3	2.3	4.6
99	4.6	0.1	0.1
100	0.3	1.4	0.2
IC6002			
1	4.4	4.4	4.4
2	4.5	4.5	4.2
3	---	---	---
4	0	0	4.4
IC6005			
1	0.9	0.8	0.2
2	1.9	1.0	0.5
3	1.0	0.9	0.4
4	0	0	0
5	0.3	0.3	0.2
6	4.5	4.5	4.5
7	7.0	1.2	3.8
8	4.3	4.2	4.2
IC6006			
1	0	0	0
2	6.5	6.5	6.6
3	4.5	4.5	4.5
IC6007			
1	0	0	0
2	0	0	0
3	0.6	2.0	0.5
4	6.5	6.5	6.6
5	6.5	6.5	6.6
6	0.1	0.1	0.1
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0.1	0
12	4.5	4.6	4.5
13	0	0	0
14	0.4	2.0	0.6
15	0	0	0
16	0	0	0
IC6203			
1	1.2	0	1.2
2	0	0	0
3	0	0	0
4	2.6	0	4.2
Q6004			
E	4.6	4.6	4.5
C	0.1	0.1	0.1
B	4.6	4.5	4.5
Q6005			
E	4.7	0	1.4
C	4.5	4.5	4.5
B	4.6	0	0
Q6008			
E	4.5	0	1.2
C	4.5	0.1	4.5
B	4.6	0	0
Q6009			
E	4.6	4.6	4.6
C	0.3	5.0	9.9
B	2.3	2.0	2.0
Q6010			
E	0	0	0
C	0	0.1	0.1
B	4.5	4.5	4.5
Q6011			
E	4.6	4.6	4.6
C	4.6	0.3	0
B	4.0	4.5	4.6
Q6012			
G	0	0	0
S	0	0	0
D	4.1	4.4	4.4
Q6013			
E	0.3	0.3	0.2
C	7.2	7.1	7.2
B	0.3	0.3	0.1
Q6018			
E	1.7	2.1	2.2
C	4.2	3.7	3.6
B	0.1	0.1	0.1
Q6021			
E	6.8	6.8	6.8
C	6.8	6.9	6.6
B	6.1	6.2	5.9
Q6022			
E	0	0	0
C	0	0	0
B	0.6	0.6	0.6
Q6026			
E	6.8	6.8	6.6
C	6.8	6.8	6.6
B	2.9	2.9	2.8
Q6201			
E	4.5	4.5	4.5
C	4.5	4.5	4.5
B	3.8	3.8	3.8
Q6202			
E	0	0	0
C	0	0	0
B	0.6	0.6	0.6
TP6001	0.5	0.5	0.3
TP6003	0.1	0.1	0.1
TP6004	3.8	---	4.4
TP6006	0.9	3.8	1.2
TP6007	3.3	---	4.1
TP6010	4.5	4.6	4.5
TP6011	4.2	4.4	2.5
TP6012	4.1	4.5	4.5
TP6014	4.4	4.4	2.5
TP6015	4.5	4.6	4.6
TP6020	4.1	4.2	4.2
TP6021	1.0	3.4	3.7
TP6022	1.0	3.7	0
TP6023	0.1		0.1
TP6201	2.3	2.3	0.1
TP6202	2.3	2.3	2.3
TP6205	3.2	2.3	3.2
TP6206	3.4	2.3	3.2
TP6207	2.3	2.3	2.3
TP6208	0.8	0.5	0.7
TP6210	0.5	2.2	0.5
TP6212	1.6	1.9	0.1
TP6215	0.1	0	4.6
TP6216	4.6	0	0
TP6220	0.7	0.7	0

EVF C.B.A. (B,C,D,E,F)

MODE / PIN NO.	CAMERA
IC901	
1	2.0
2	4.5
3	2.0
4	0
5	2.0
6	0.6
7	0
8	4.2
9	3.7
10	0
11	1.8
12	4.4
13	2.6
14	1.9
15	1.8
16	2.2
Q901	
E	0
C	5.9
B	0.5
Q902	
E	2.9
C	-29.6
B	2.3
TP901	3.7
TP902	4.2

COLOR EVF A/B C.B.A. (A)

MODE / PIN NO.	CAMERA
IC901	
1	1.7
2	1.7
3	1.6
4	---
5	---
6	---
7	---
8	1.3
9	---
10	6.2
11	6.2
12	6.2
13	6.2
14	6.2
15	0
16	6.2
17	0
18	0
19	---
20	0.1
21	---
22	1.6
23	---
24	0
25	3.2
26	0
27	1.4
28	0
29	0.1
30	---
31	1.6
32	---
33	---
34	0
35	---
36	0.4
37	0.6
38	2.7
39	2.7
40	---
41	---
42	---
43	0
44	3.2
45	0
46	---
47	2.1
48	1.9
Q901	
S	0
D	2.7
G	1.2

MODE / PIN NO.	CAMERA
Q902	
E	0
C	3.9
B	0.7
Q903	
E	3.3
C	4.6
B	3.9
Q904	
E	4.1
C1	4.6
B1	4.7
C2	16.0
B2	12.3
Q905	
E	15.0
C	12.3
B	14.7
TP901	6.2
TP902	6.2
TP903	6.2
TP904	0.4
TP905	3.3
TP906	12.3

LCD C.B.A. (C,D,E,F)

MODE / PIN NO.	CAMERA
IC1201	
1	0.8
2	0.1
3	4.5
4	1.0
5	0.4
6	0
7	0.5
8	0.1
IC9001	
1	1.7
2	1.7
3	1.7
4	---
5	---
6	---
7	---
8	0.9
9	3.9
10	2.6
11	2.6
12	2.3
13	2.6
14	2.6
15	2.6
16	2.6
17	0.1
18	7.5
19	0.1
20	0.1
21	0.3
22	1.6
23	1.6
24	1.6
25	3.3
26	1.8
27	0.7
28	0.1
29	0.1
30	0.1
31	0.6
32	0.5
33	0.5
34	0.5
35	0.1
36	0.4
37	0.9
38	2.9
39	2.9
40	0.1
41	3.3
42	0.5
43	---
44	3.2
45	0.1

MODE / PIN NO.	CAMERA
46	2.3
47	2.0
48	1.9
IC9002	
1	0
2	-14.8
3	6.1
4	6.1
5	12.2
Q1202	
E	0.1
C	0.1
B	0.7
Q1203	
E	3.6
C	3.6
B	0.1
Q1204	
E	3.6
C	3.6
B	0.1
Q1205	
E	3.6
C	0.1
B	3.6
Q1206	
E	0.1
C	4.2
B	0.1
Q1207	
E	3.6
C	-15.4
B	3.7
Q1208	
E	15.0
C	15.5
B	15.5
Q1209	
E	15.0
C	15.5
B	15.5
Q1210	
E	0
C	0
B	0
Q1211	
E	3.7
C	3.8
B	4.3
Q1212	
E	0.1
C	4.8
B	0.1

MODE / PIN NO.	CAMERA
Q1213	
E	0.1
C	4.3
B	0.1
Q1214	
G	3.3
S	0
D	0
Q1215	
E	0
C	3.1
B	0
Q1216	
E	0
C	0
B	3.0
Q1217	
E	0
C	7.1
B	0.4
Q1218	
E	12.6
C	12.2
B	12.8
Q1219	
E1	12.2
C1	5.0
B1	5.2
E2	5.0
C2	0
B2	4.0
Q1220	
E	-14.8
C	-15.8
B	-15.0
Q1221	
E	7.6
C	12.6
B	7.5
Q1222	
E	0.1
C	7.6
B	0
Q9001(E)	
E	0.1
C	5.2
B	0.2
Q9002(E)	
E	0.1
C	5.2
B	0.2
Q9004(D,F)	
E	0.1
C	5.2
B	0.2

MODE / PIN NO.	CAMERA
Q9005 (D,F)	
E	0.1
C	5.2
B	0.2
Q9051(C,D,F)	
E	0.1
C	0
B	-0.2
Q9052(C,D,F)	
E	0
C	4.4
B	0
Q9101(E)	
E	0
C	0
B	1.0
Q9102(E)	
E	0
C	0
B	1.8
TP1201	3.3
TP1202	4.5
TP1203	12.2
TP1204	7.6
TP1205	0.1
TP1206	14.8
TP9001	2.6
TP9002	2.6
TP9003	2.6
TP9004	---
TP9005	0.1
TP9006	0.1
TP9007	0.3

CCD C.B.A.

MODE / PIN NO.	CAMERA
IC601	
1	-7.5
2	-7.5
3	0
4	0
5	---
6	0
7	0
8	14.9
9	0
10	5.8
11	0
12	0.3
13	2.4
14	1.9
Q601	
E	2.4
C	14.9
B	0

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

9 CIRCUIT BOARD LAYOUT

9.1. MAIN C.B.A.

MAIN C.B.A. LSEP8024E1 (A) / LSEP8024D1 (B) / LSEP8024A1 (C) / LSEP8024F1 (D) / LSEP8024C1 (E) / LSEP8024B1 (F)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 3A 32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 3A 32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 63V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.5A 63V

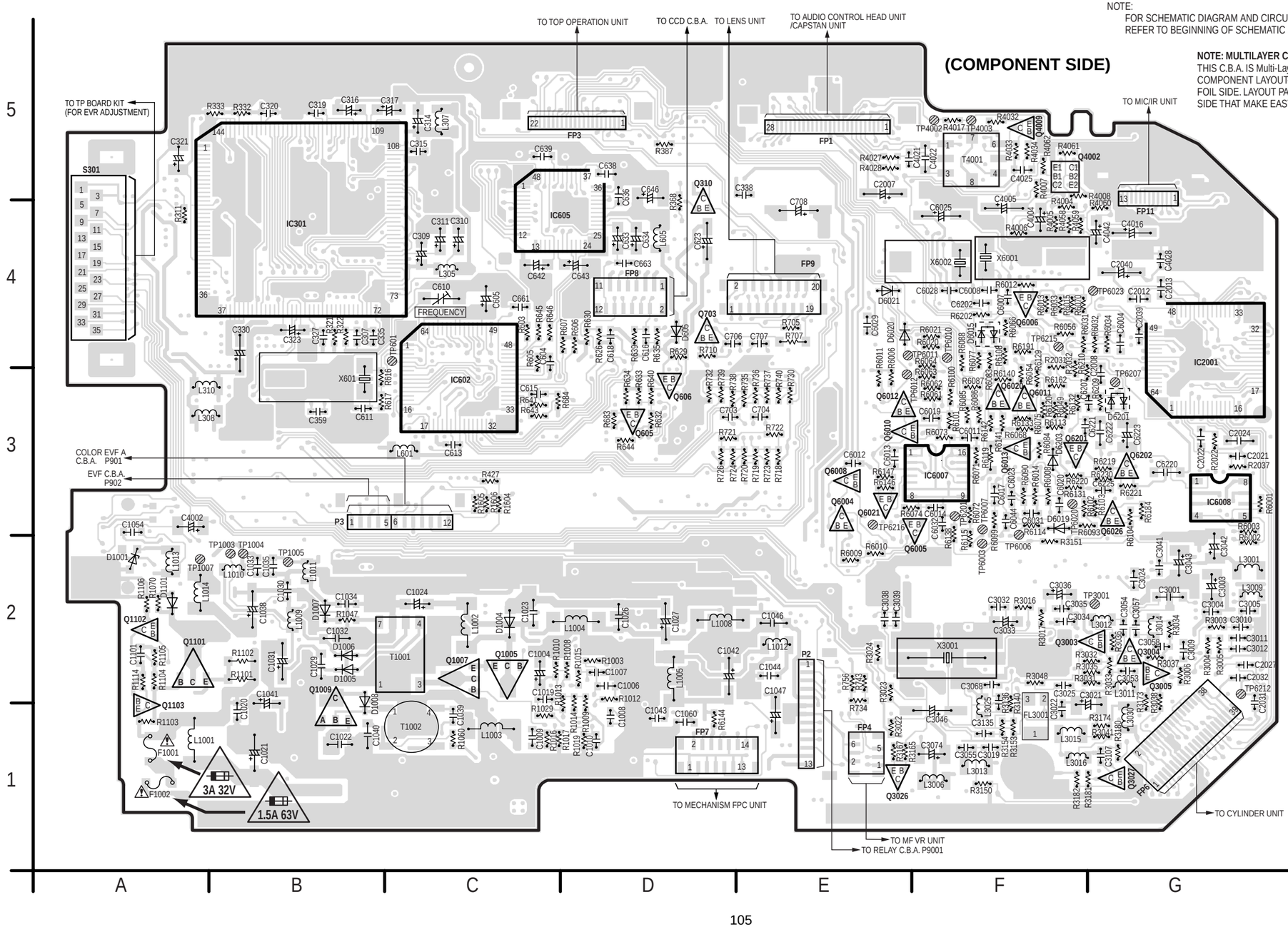
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

MAIN C.B.A. LSEP8024E1 (A) / LSEP8024D1 (B) / LSEP8024A1 (C) / LSEP8024F1 (D) / LSEP8024C1 (E) / LSEP8024B1 (F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

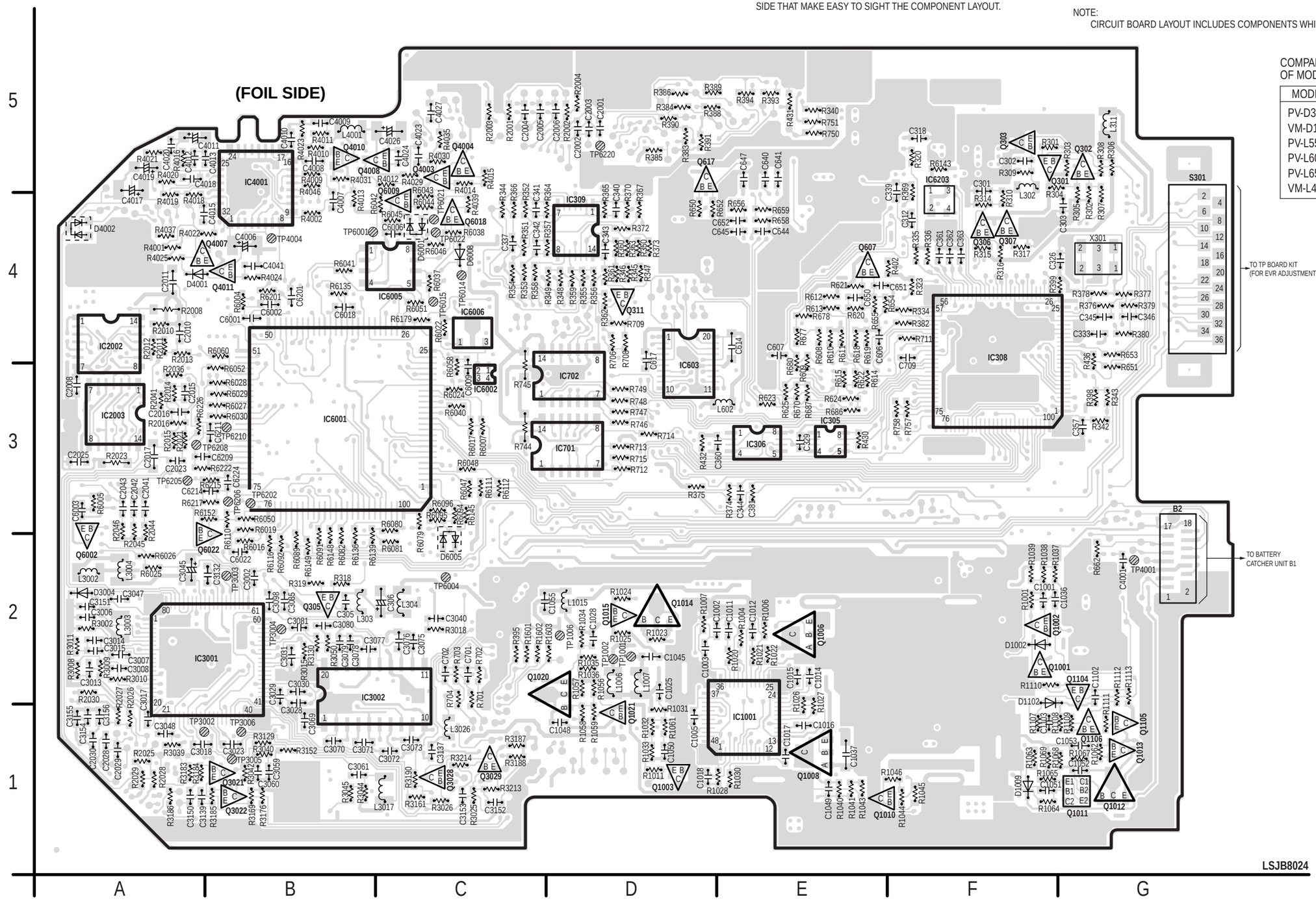
NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



9.2. LCD C.B.A. (C, D, F) / RELAY C.B.A. (C, D, E, F)

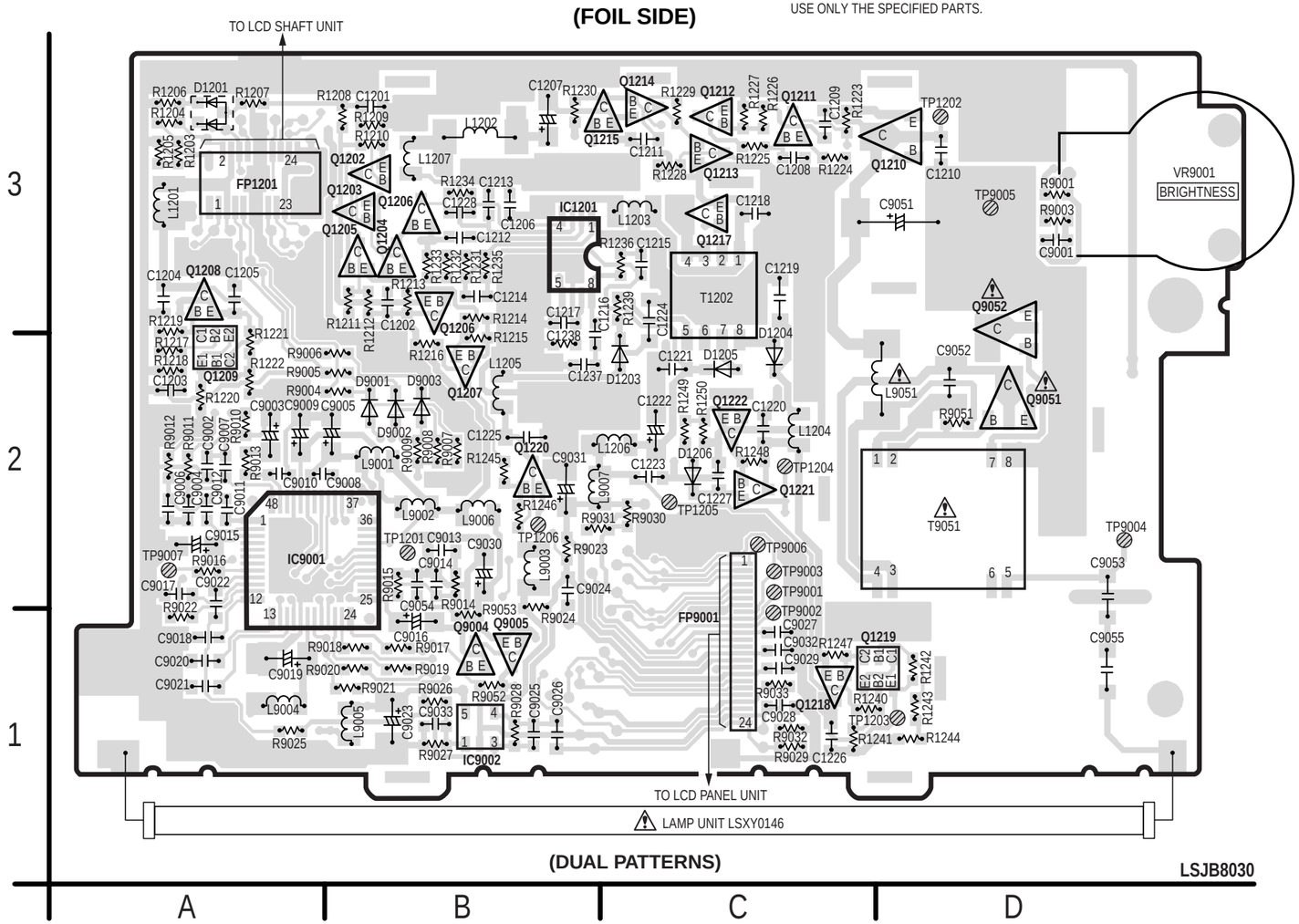
LCD C.B.A. LSEP8030A1 (C) / LSEP8030B1 (D, F)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

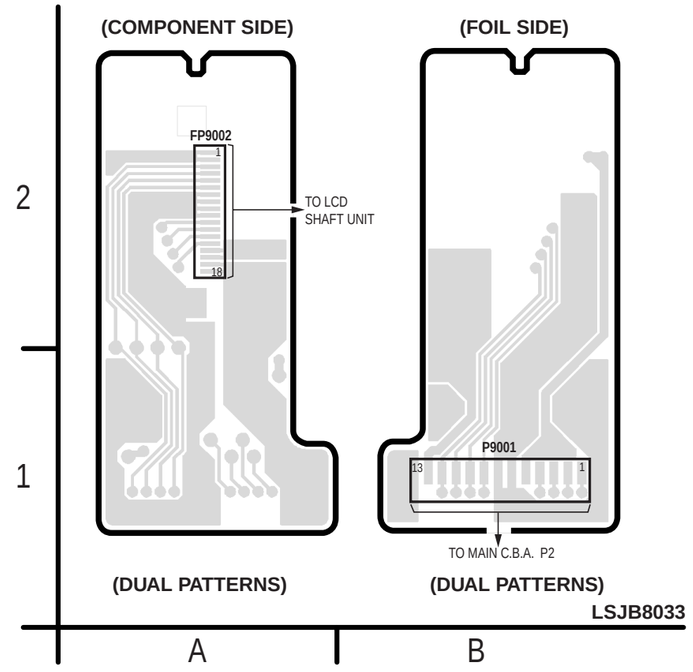
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



RELAY C.B.A. LSEP8033A1 (C, D, E, F)



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

9.3. LCD C.B.A. (E)

LCD C.B.A. LSEP8031A1 (E)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

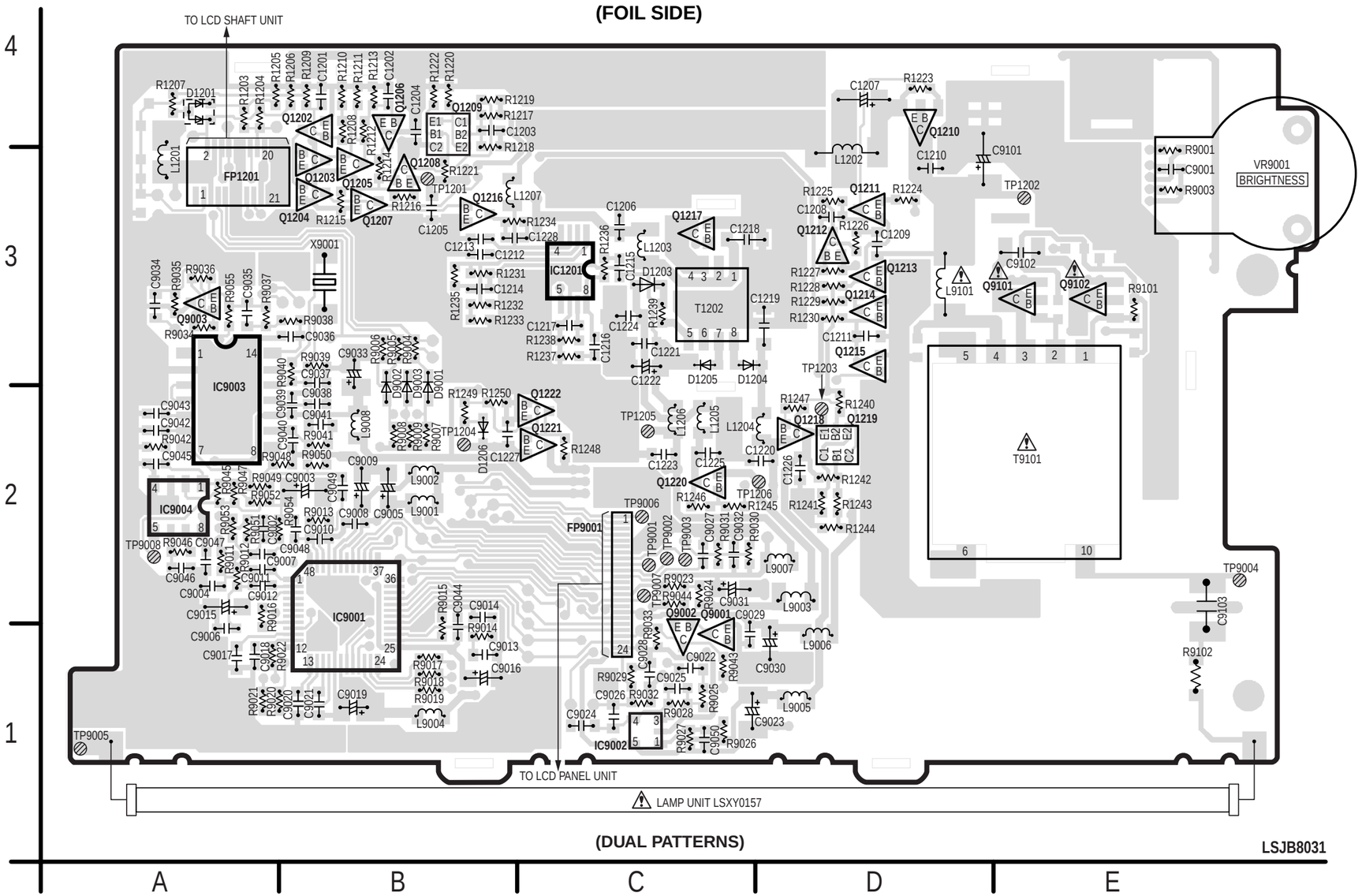
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



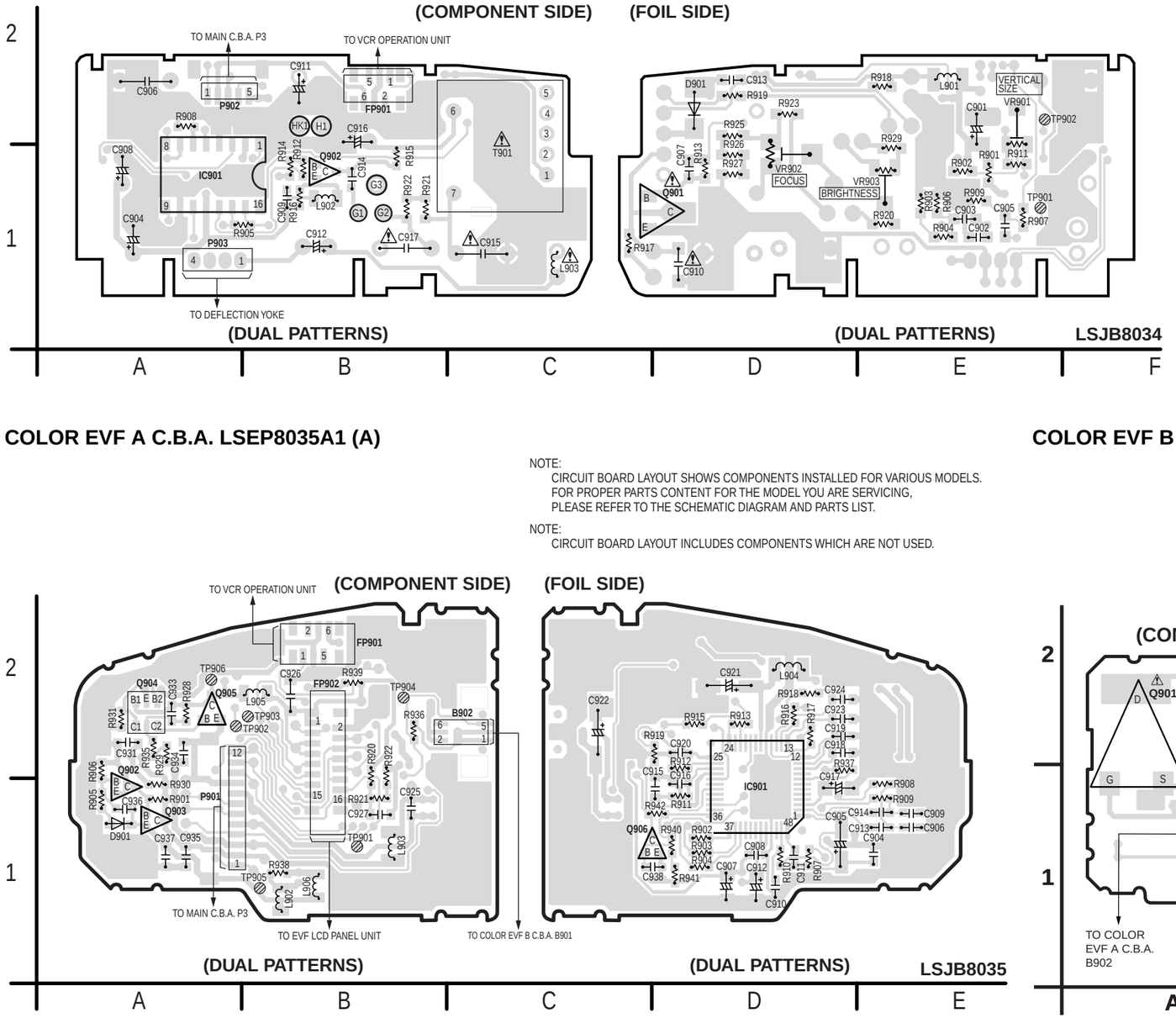
9.4. EVF C.B.A. (B, C, D, E, F) / COLOR EVF C.B.A. (A) / MECHANISM FPC UNIT

EVF C.B.A. LSEQ0558 (B, C, D, E, F)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

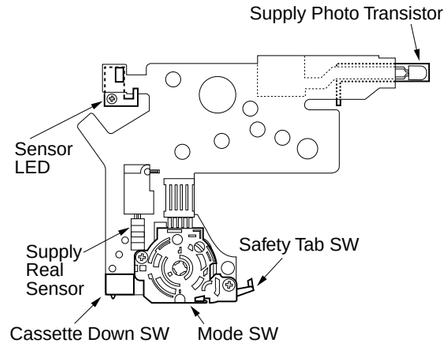
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



MECHANISM FPC UNIT

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

COLOR EVF A C.B.A. LSEP8035A1 (A)

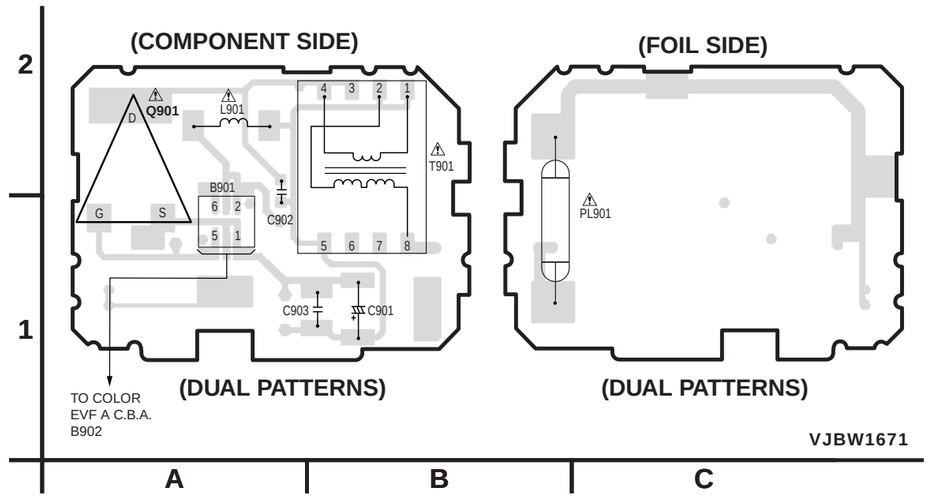
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COLOR EVF B C.B.A. VEPW1671A1 (A)

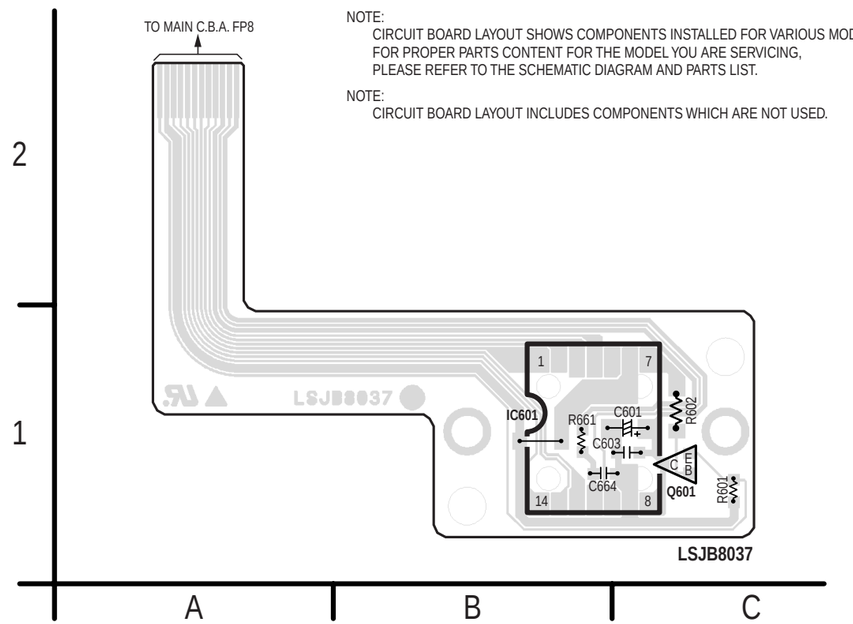
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



9.5. CCD C.B.A. / HEAD AMP C.B.A.

CCD C.B.A. LSEQ0547

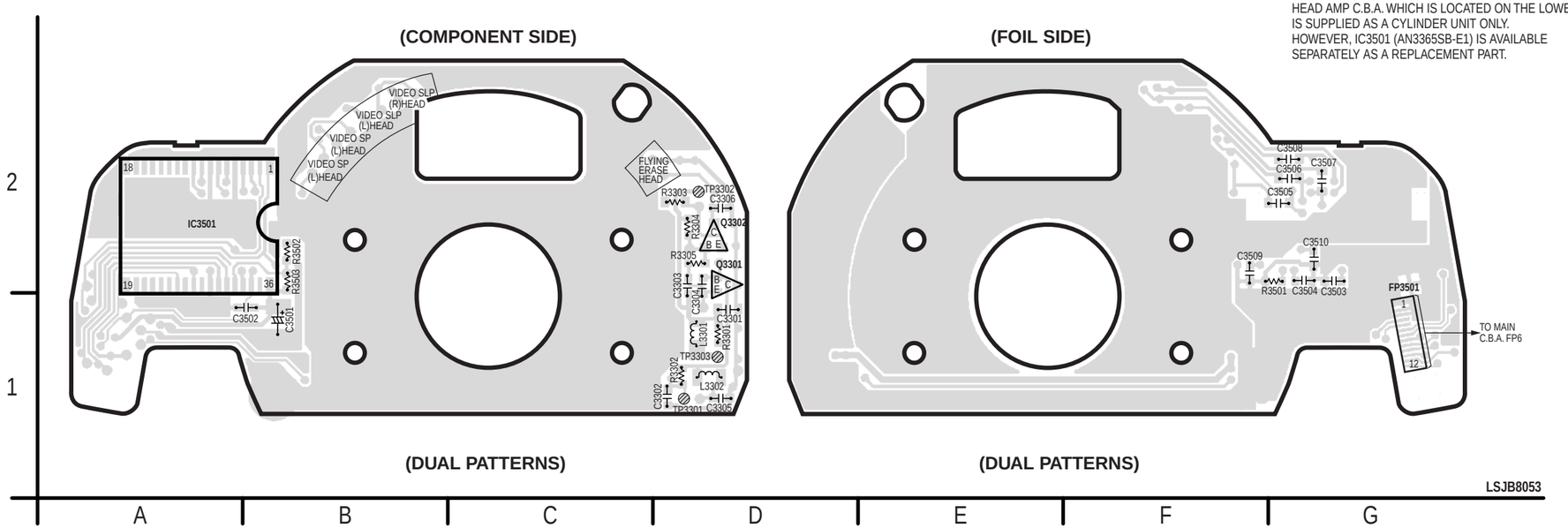


NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

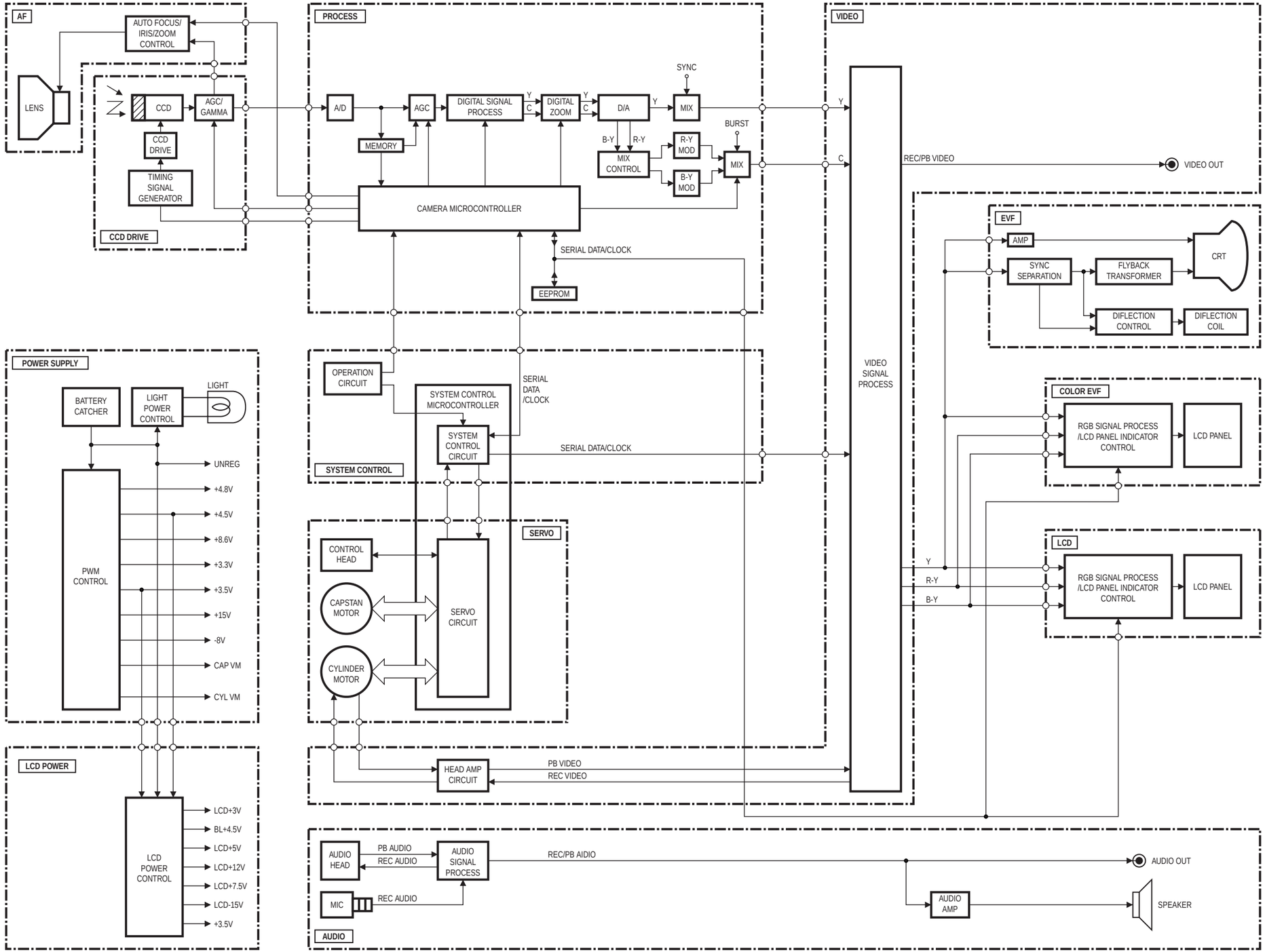
HEAD AMP C.B.A.



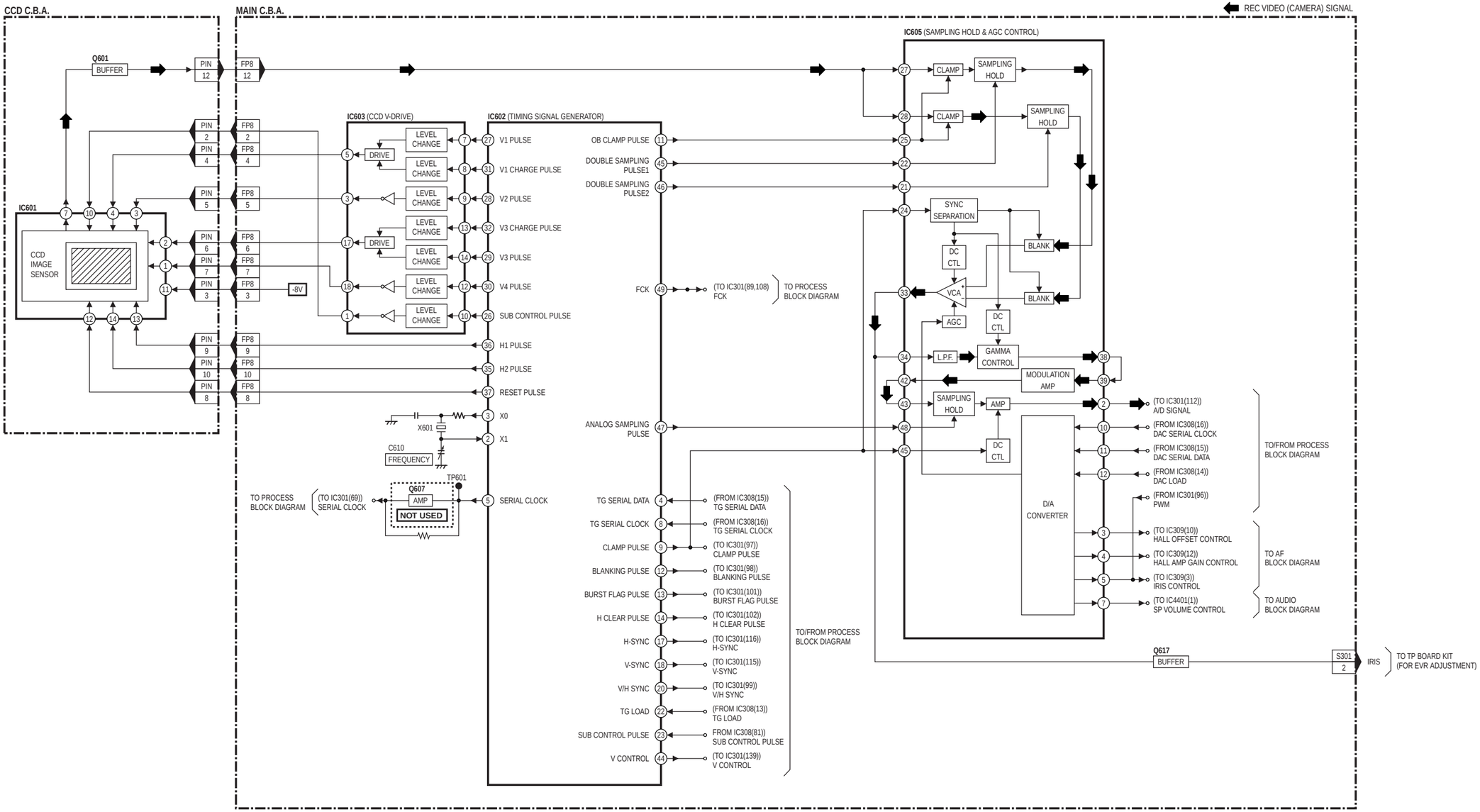
NOTE:
HEAD AMP C.B.A. WHICH IS LOCATED ON THE LOWER CYLINDER
IS SUPPLIED AS A CYLINDER UNIT ONLY.
HOWEVER, IC3501 (AN3365SB-E1) IS AVAILABLE
SEPARATELY AS A REPLACEMENT PART.

10 BLOCK DIAGRAMS

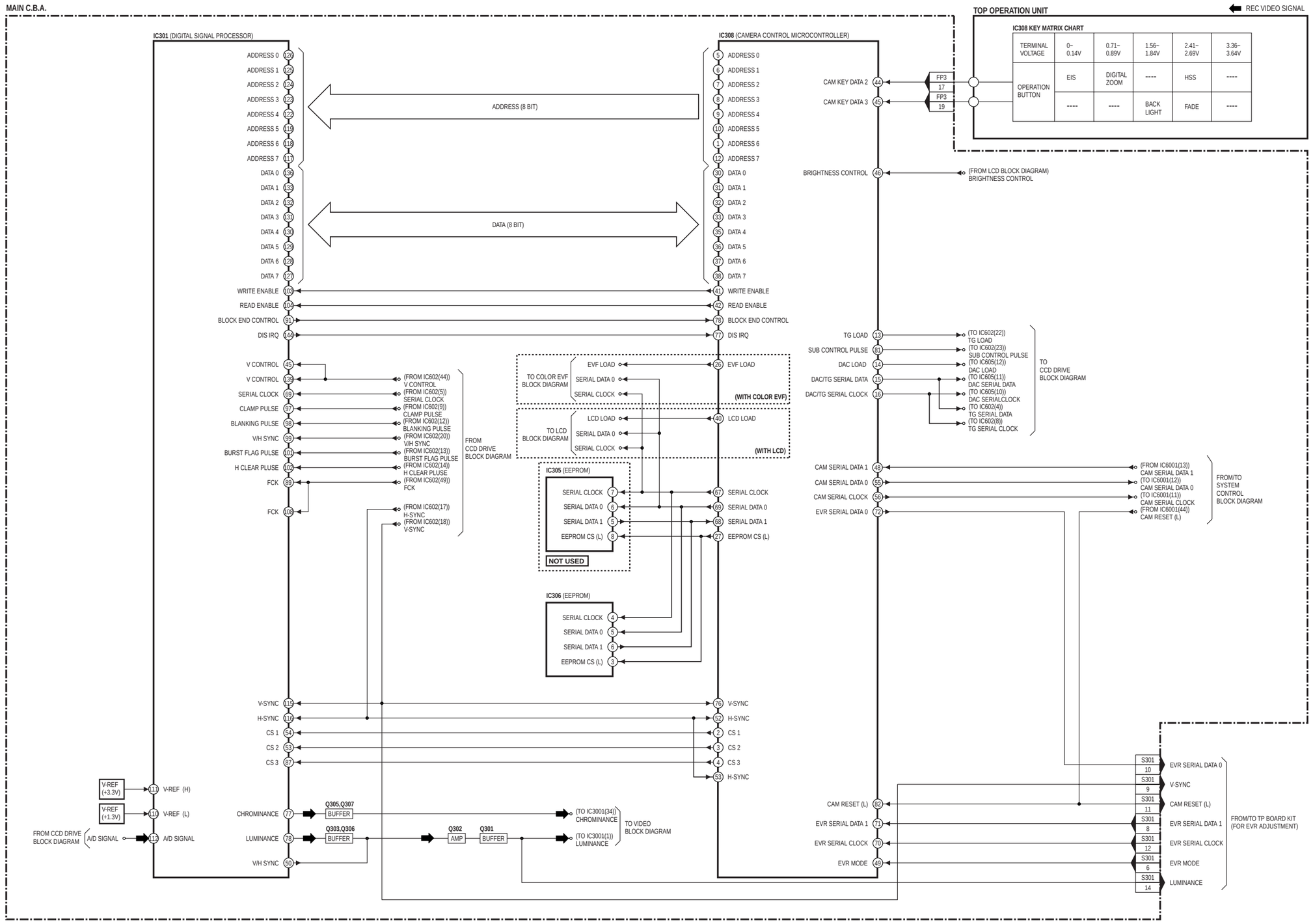
10.1. OVERALL BLOCK DIAGRAM



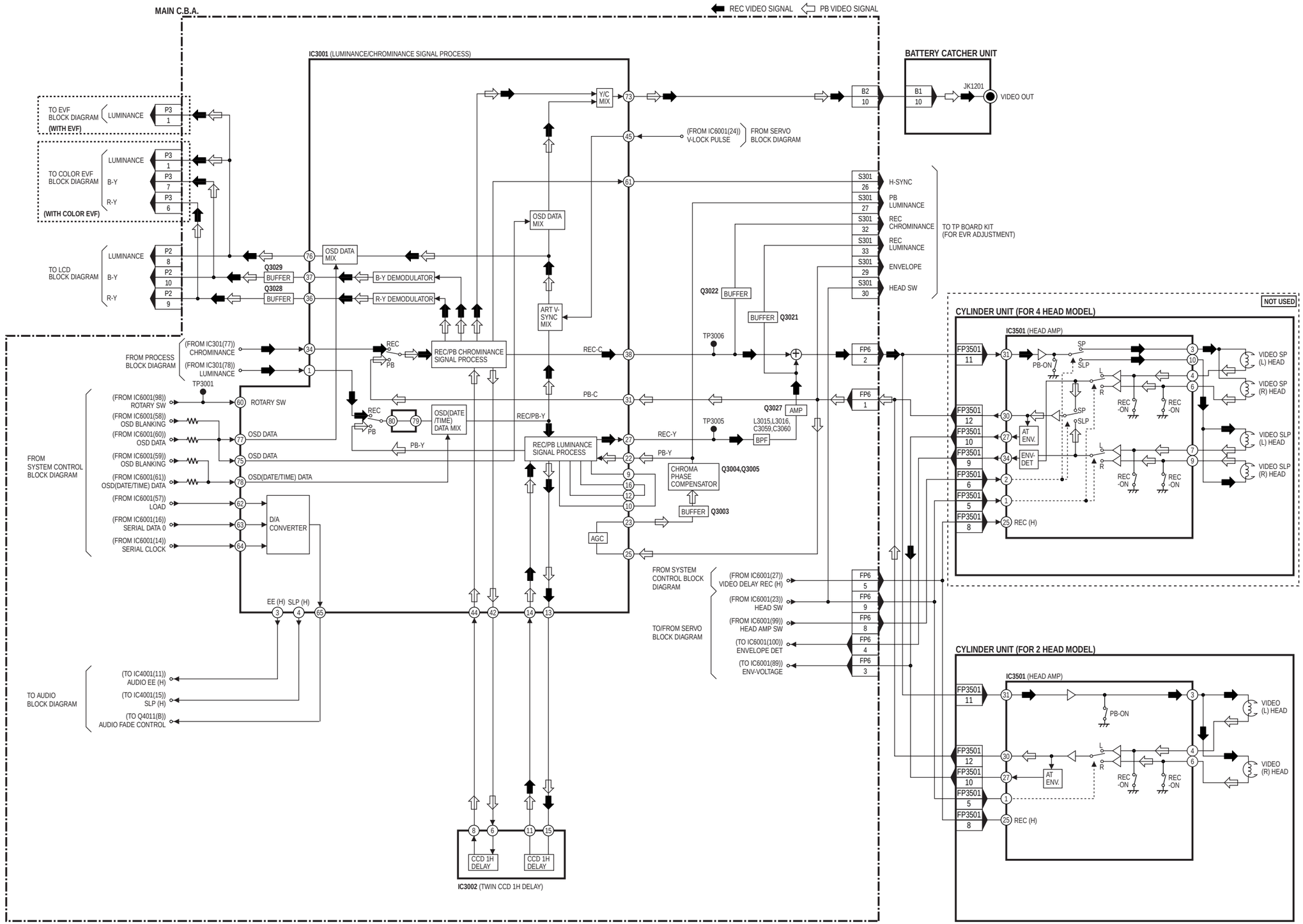
10.2. CCD DRIVE BLOCK DIAGRAM



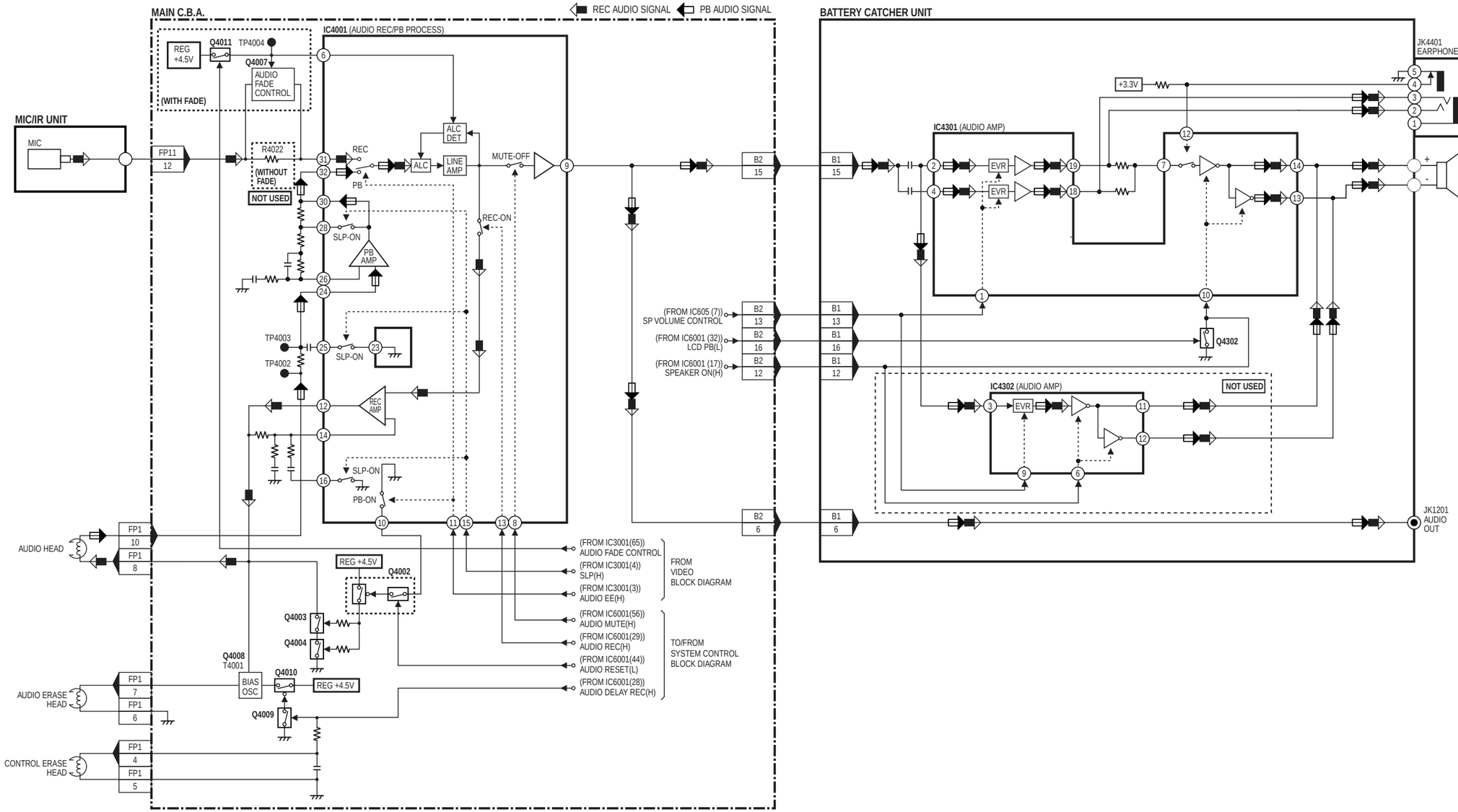
10.3. PROCESS BLOCK DIAGRAM



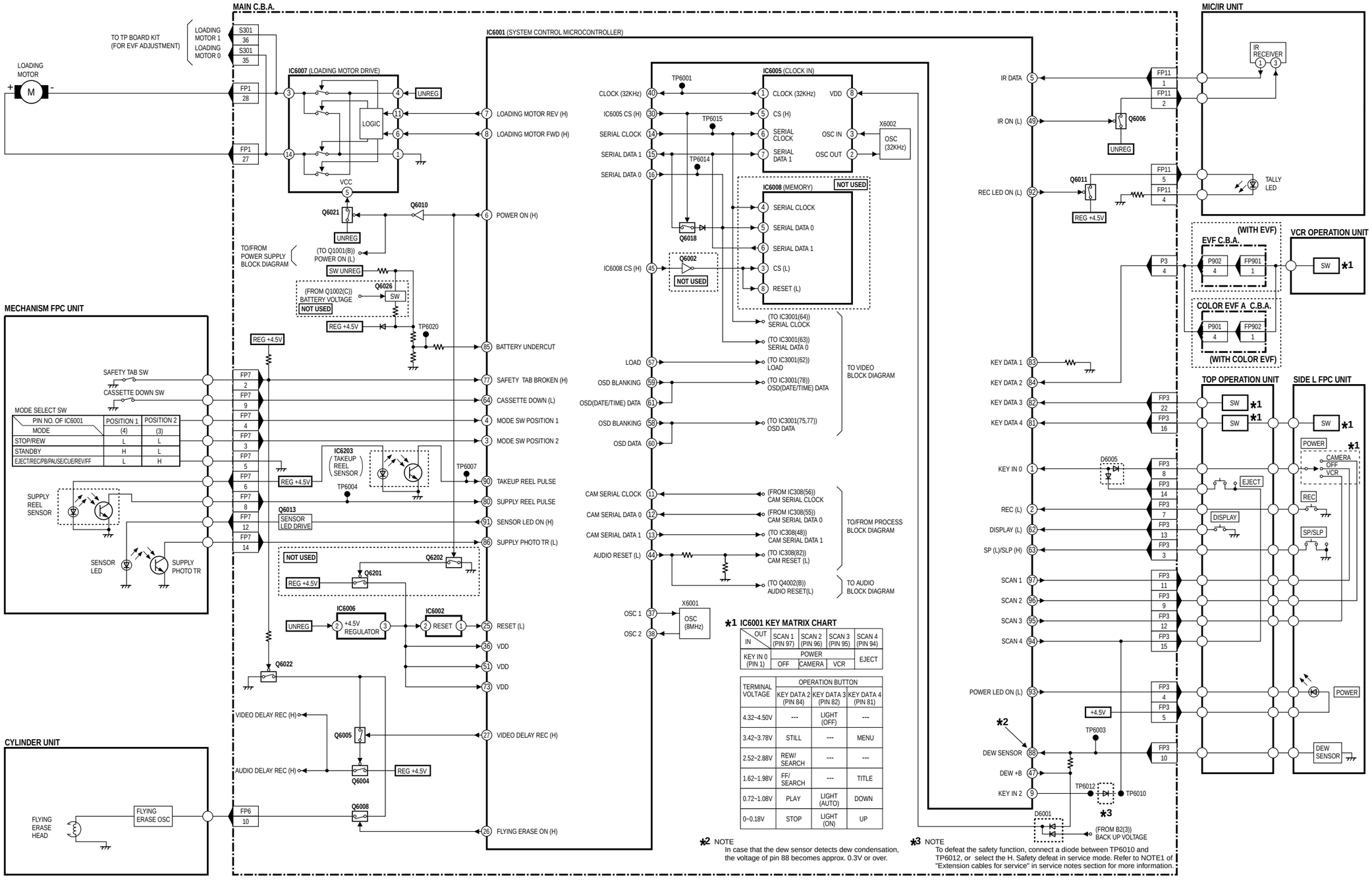
10.4. VIDEO BLOCK DIAGRAM



10.5. AUDIO BLOCK DIAGRAM



10.6. SYSTEM CONTROL BLOCK DIAGRAM



✱1 IC6001 KEY MATRIX CHART

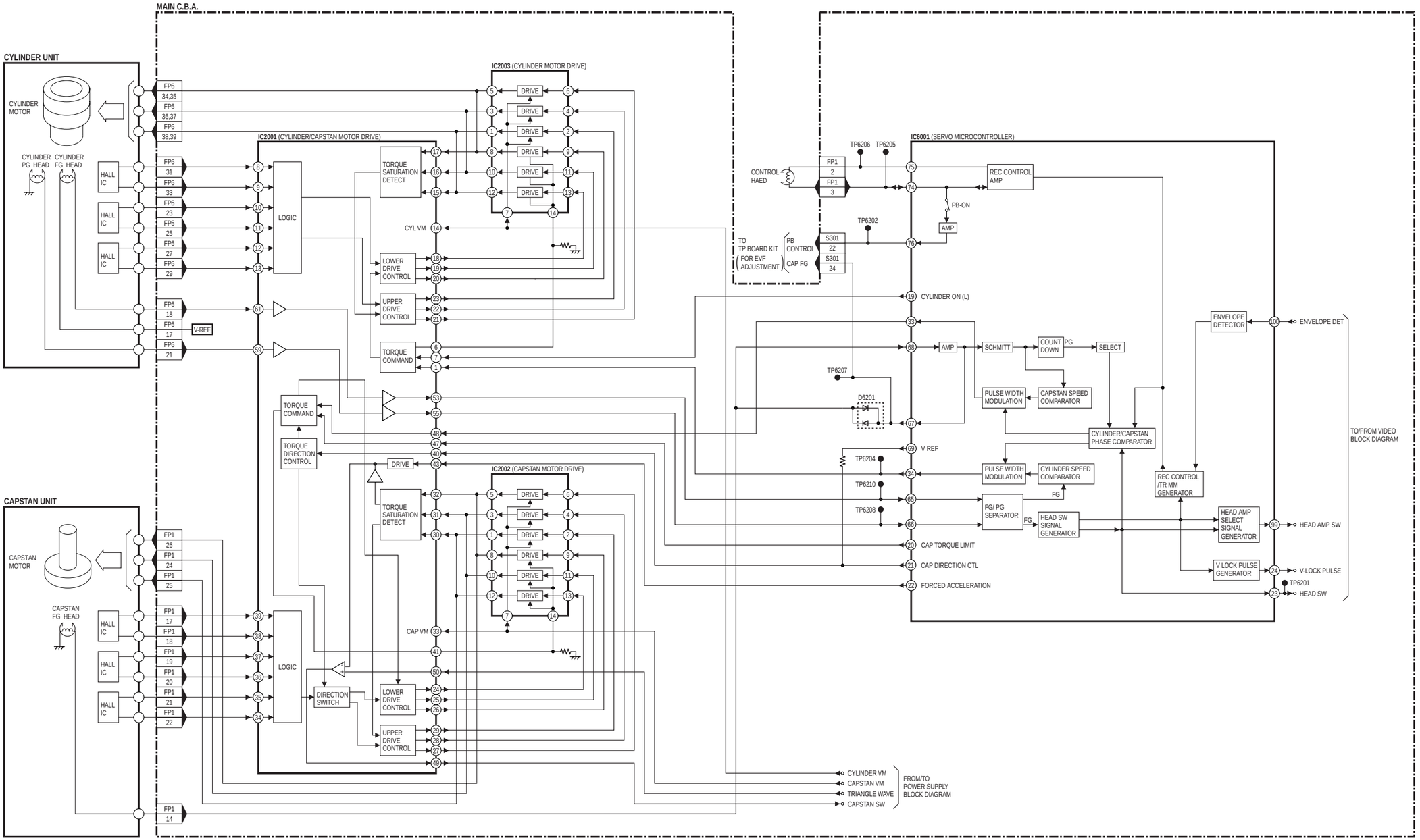
IN \ OUT	SCAN 1 (PIN 97)	SCAN 2 (PIN 96)	SCAN 3 (PIN 95)	SCAN 4 (PIN 94)
KEY IN 0 (PIN 1)	POWER OFF	POWER CAMERA	POWER VCR	EJECT

TERMINAL VOLTAGE	OPERATION BUTTON KEY DATA 2 (PIN 84)	KEY DATA 3 (PIN 82)	KEY DATA 4 (PIN 81)
4.32~4.50V	---	LIGHT (OFF)	---
3.42~3.78V	STILL	---	MENU
2.52~2.88V	REW/ SEARCH	---	---
1.62~1.98V	FF/ SEARCH	---	TITLE
0.72~1.08V	PLAY	LIGHT (AUTO)	DOWN
0~0.18V	STOP	LIGHT (ON)	UP

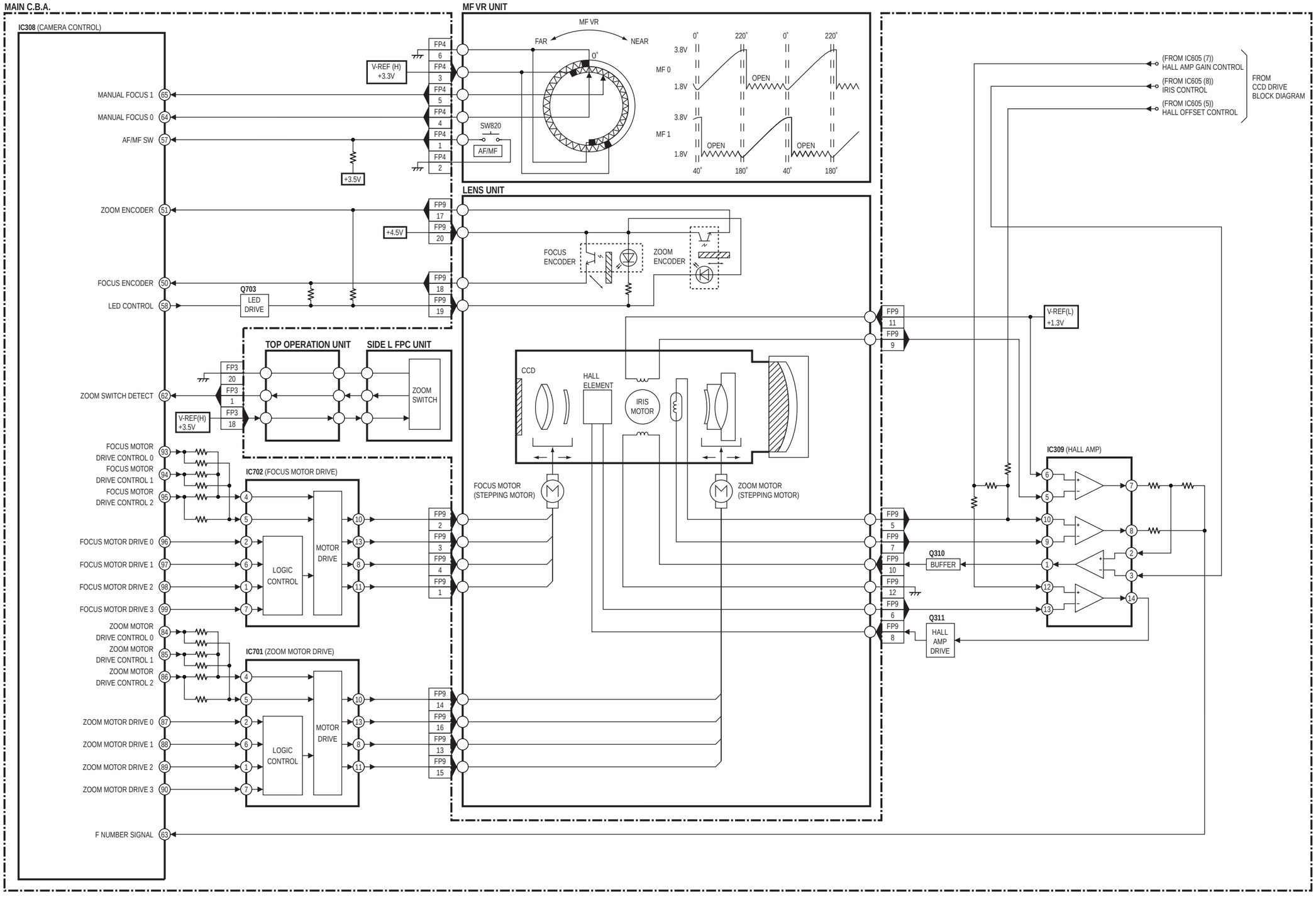
✱2 NOTE
In case that the dew sensor detects dew condensation, the voltage of pin 88 becomes approx. 0.3V or over.

✱3 NOTE
To defeat the safety function, connect a diode between TP6010 and TP6012, or select the H. Safety defeat in service mode. Refer to NOTE1 of "Extension cables for service" in service notes section for more information.

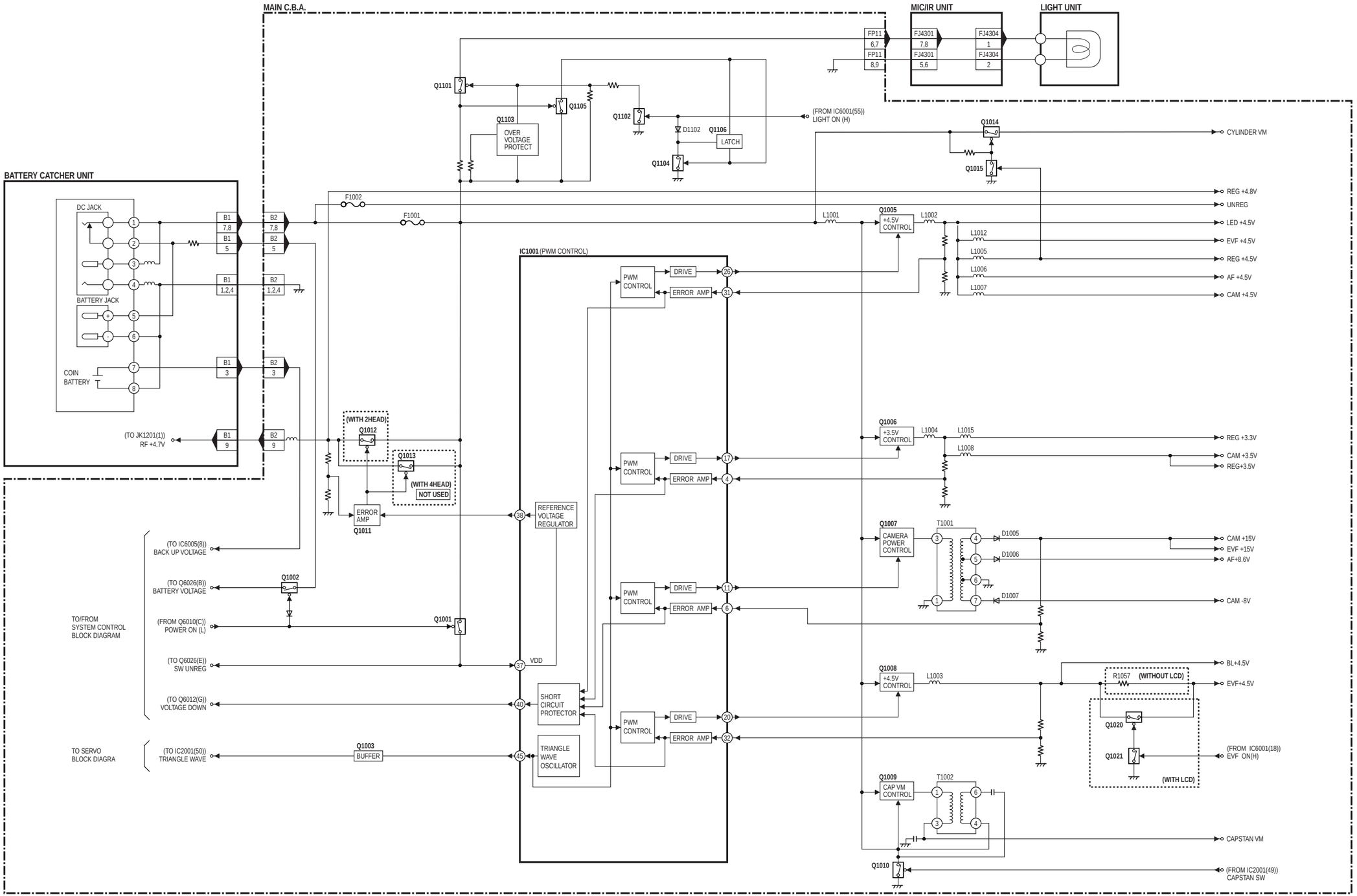
10.7. SERVO BLOCK DIAGRAM



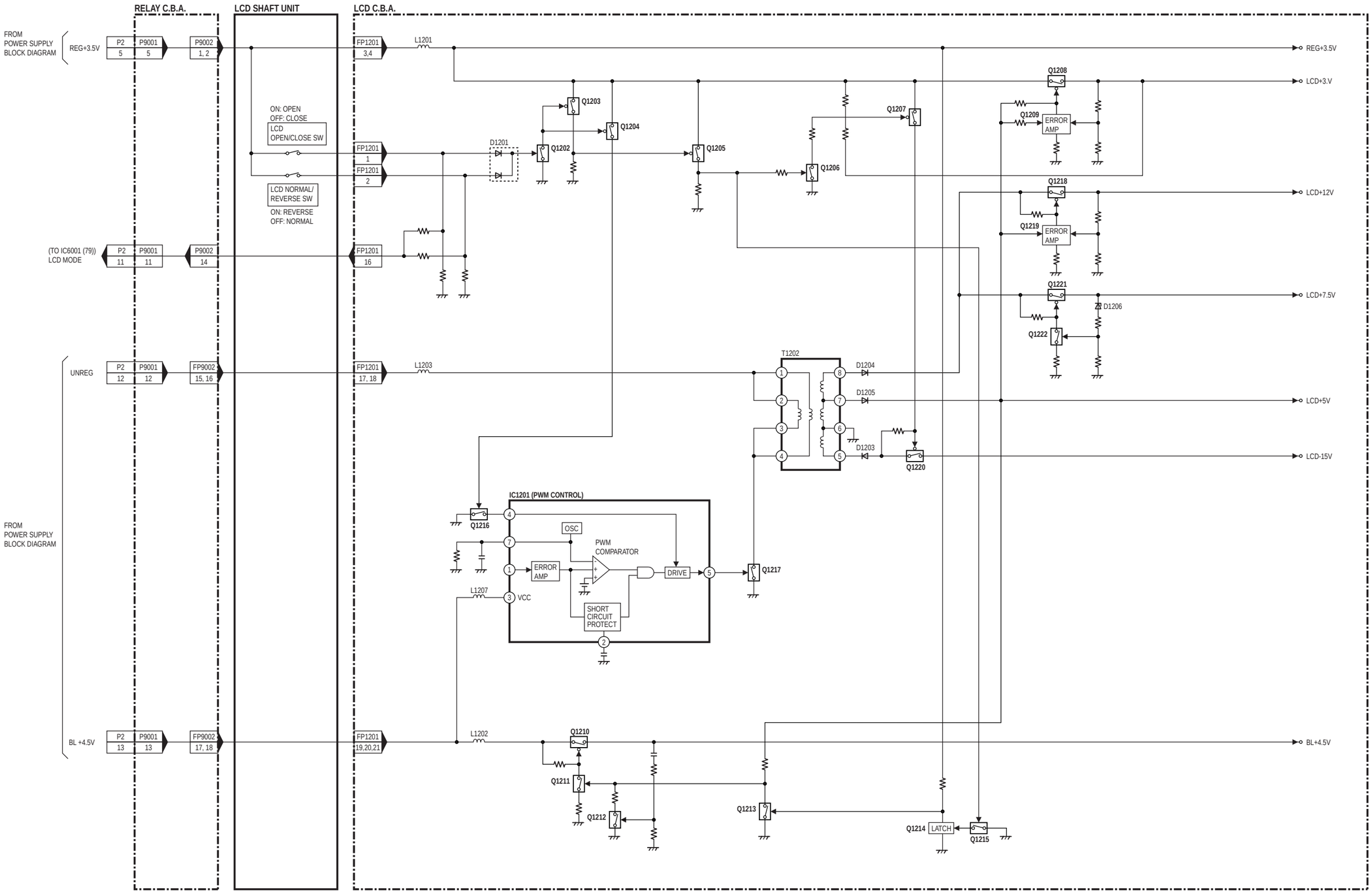
10.8. AF BLOCK DIAGRAM



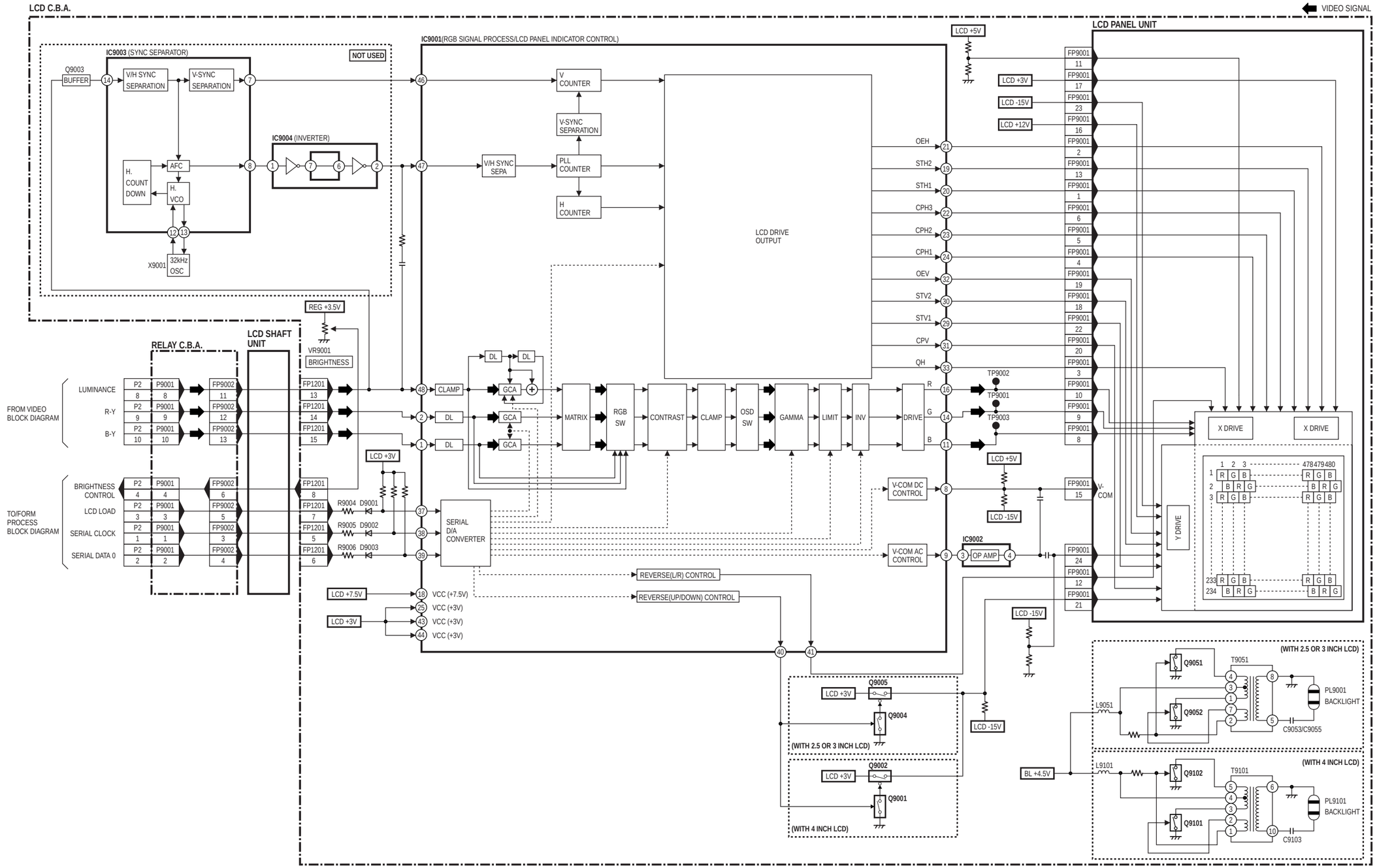
10.9. POWER SUPPLY BLOCK DIAGRAM



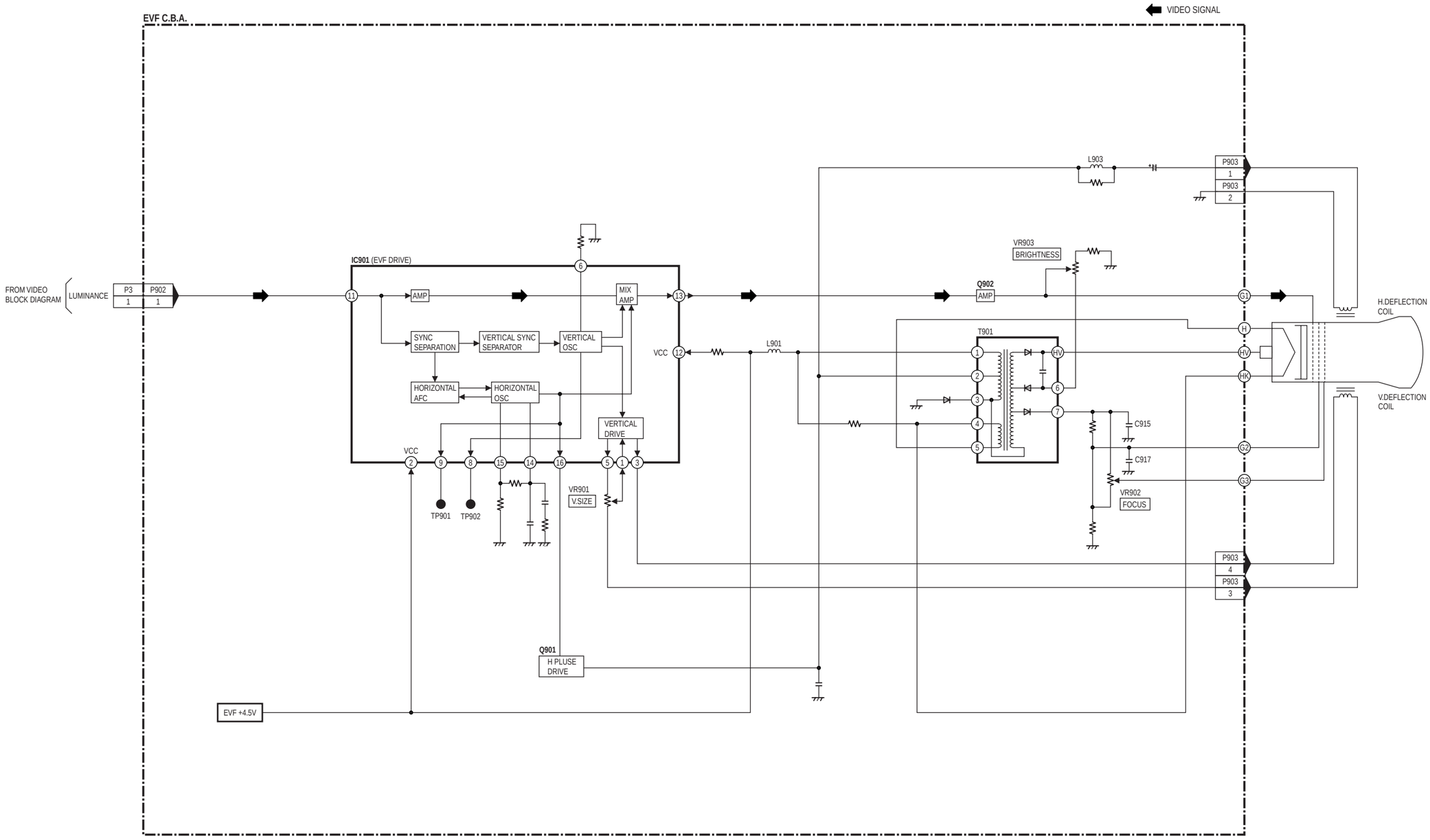
10.10. LCD POWER BLOCK DIAGRAM



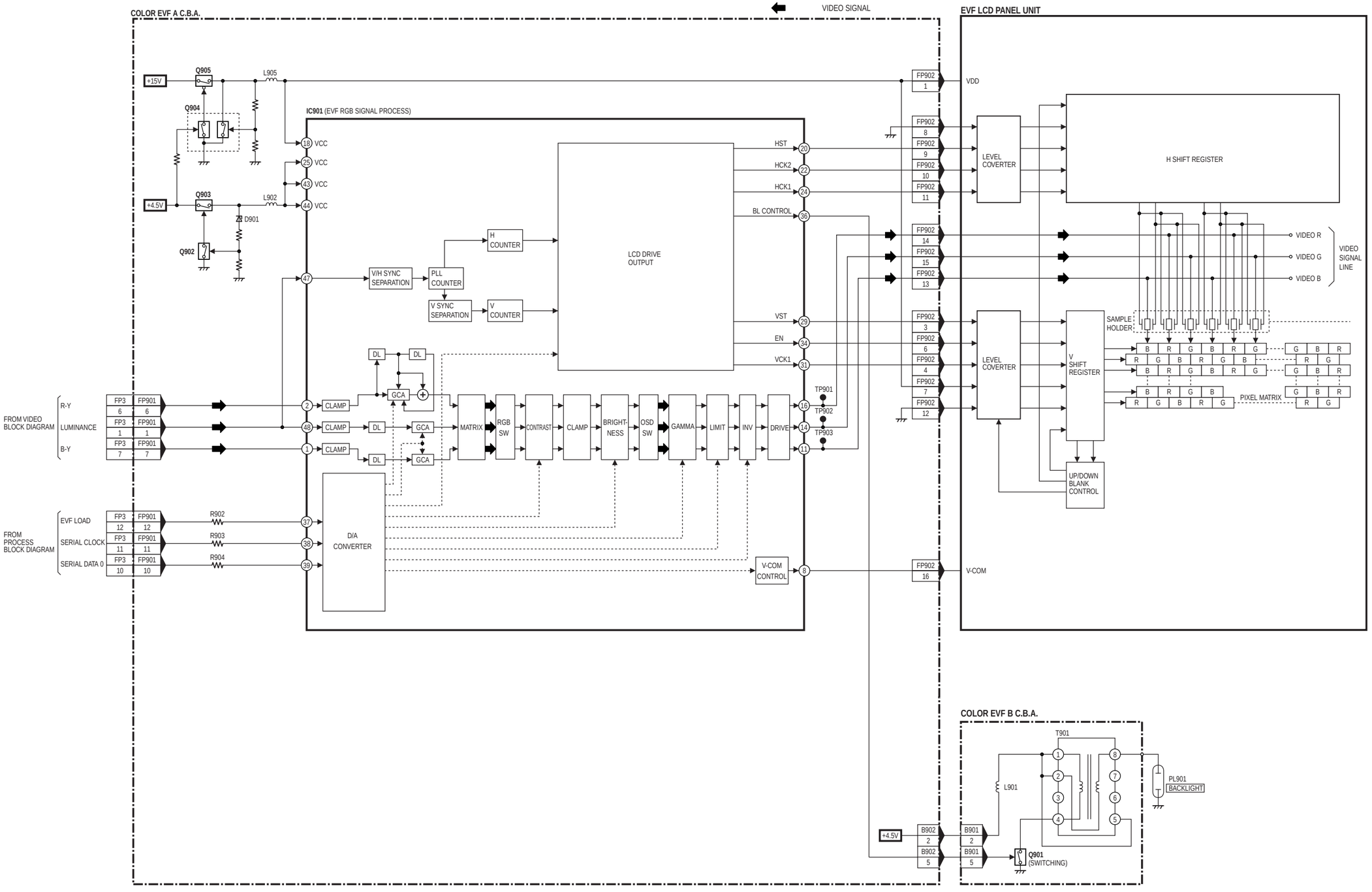
10.11. LCD BLOCK DIAGRAM



10.12. EVF BLOCK DIAGRAM



10.13. COLOR EVF BLOCK DIAGRAM



11 EXPLODED VIEWS

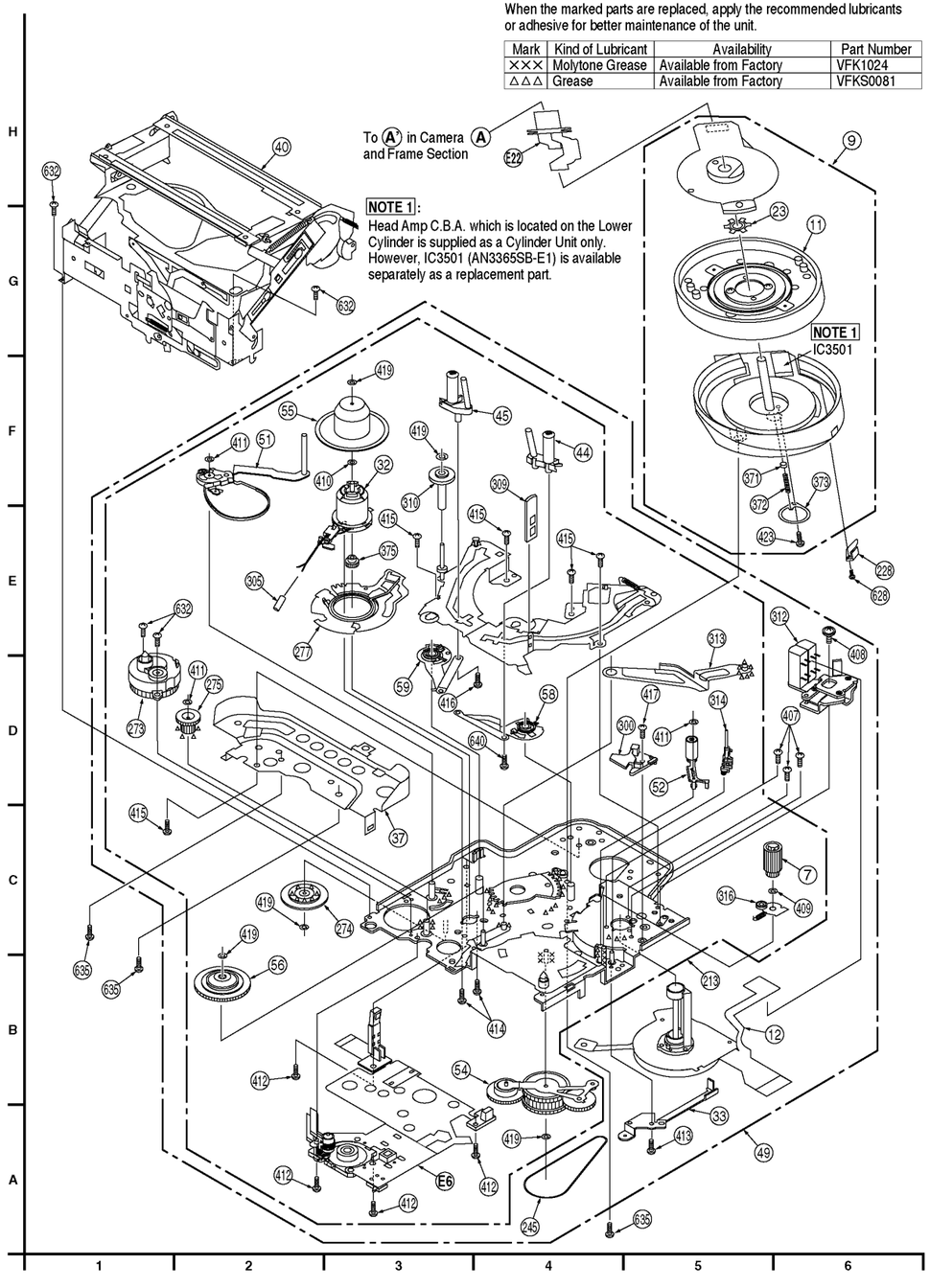
11.1. VCR MECHANISM SECTION

❶ VCR MECHANISM SECTION

Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied.
And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

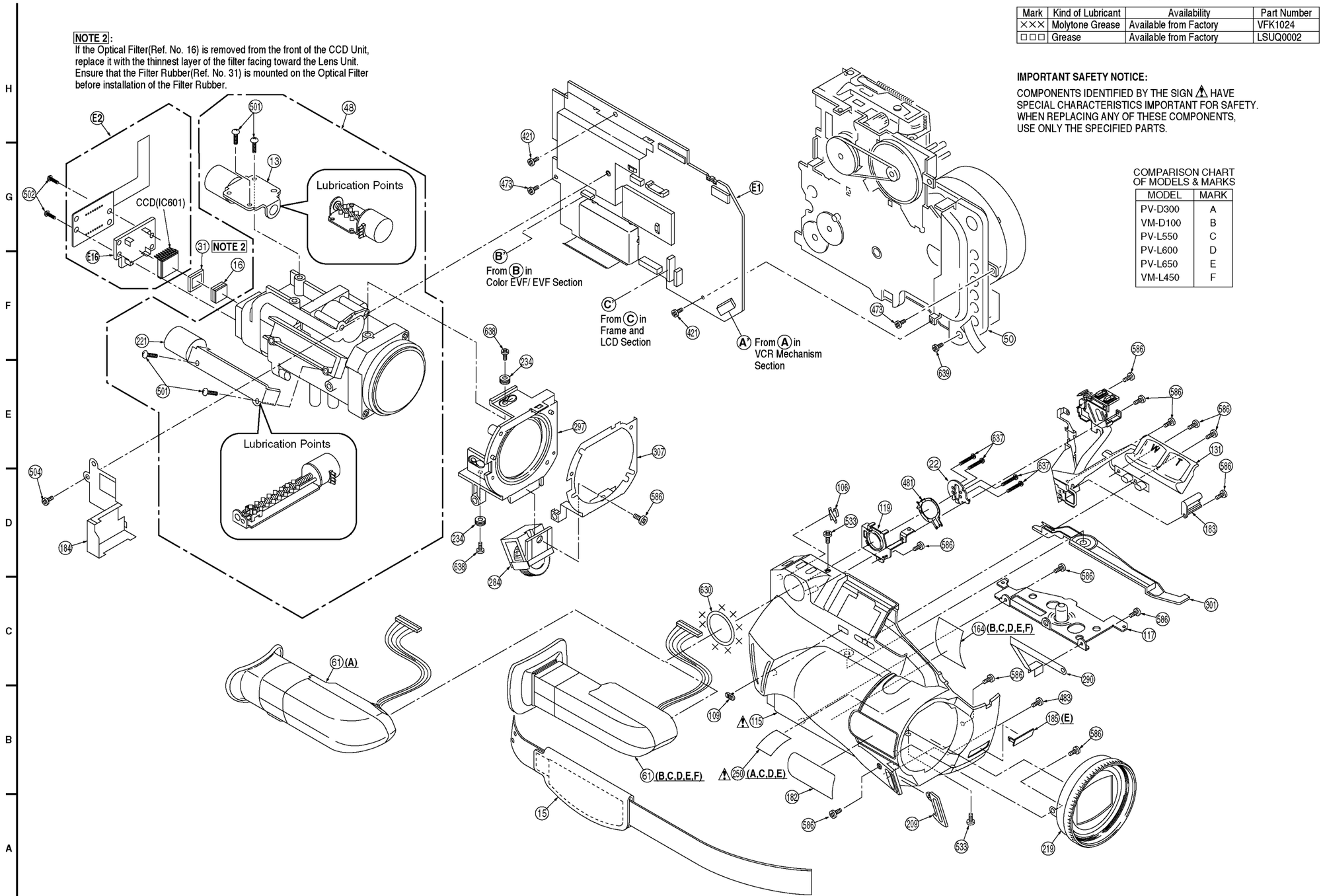
Mark	Kind of Lubricant	Availability	Part Number
×××	Molytone Grease	Available from Factory	VFK1024
△△△	Grease	Available from Factory	VFKS0081



11.2. CAMERA AND FRAME SECTION

❷ CAMERA AND FRAME SECTION

NOTE 2:
If the Optical Filter(Ref. No. 16) is removed from the front of the CCD Unit, replace it with the thinnest layer of the filter facing toward the Lens Unit. Ensure that the Filter Rubber(Ref. No. 31) is mounted on the Optical Filter before installation of the Filter Rubber.



LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
×××	Molytone Grease	Available from Factory	VFK1024
□□□	Grease	Available from Factory	LSUQ0002

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

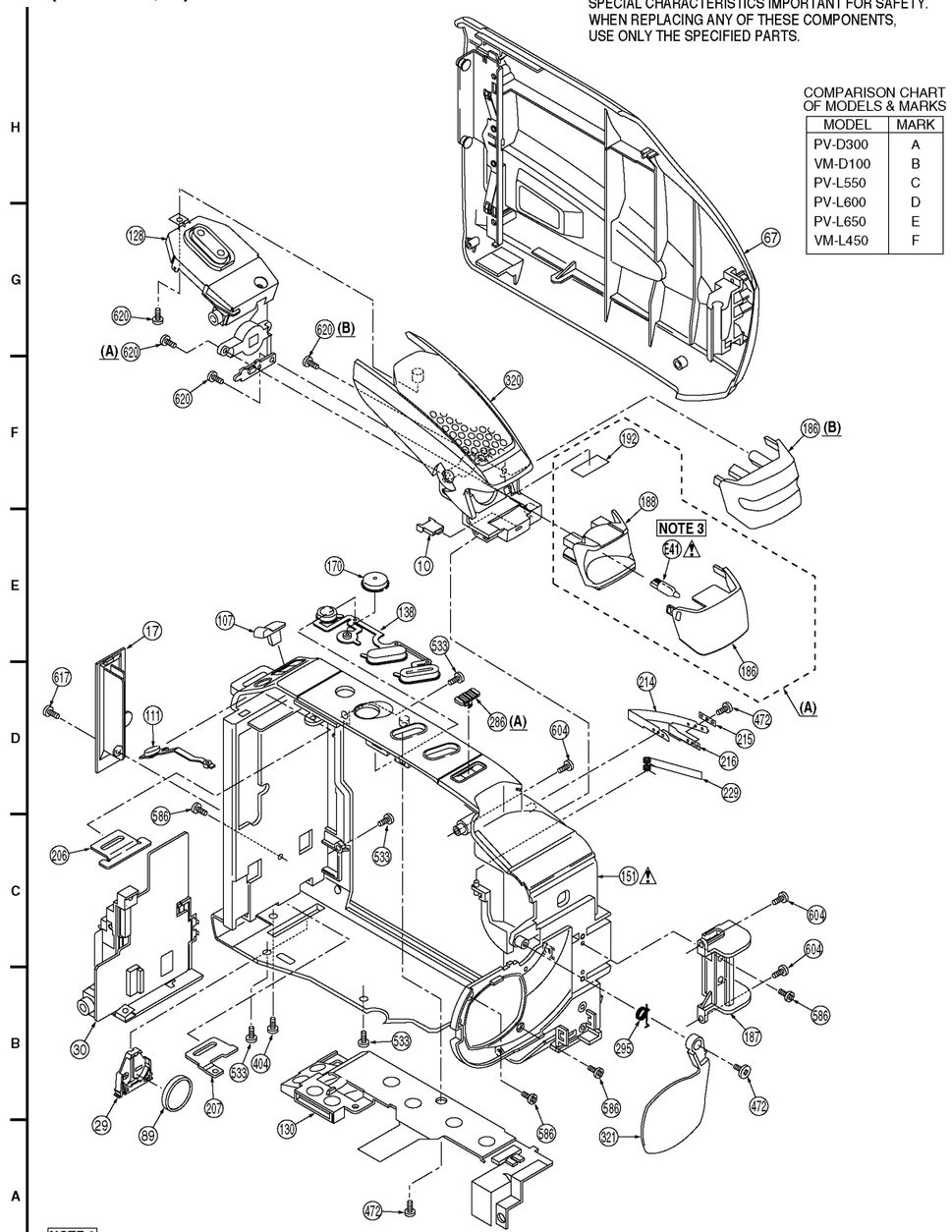
11.3. FRAME SECTION (A, B)

❸ FRAME SECTION
(Model: A, B)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



NOTE 3:
Lamp is supplied as a Lamp Kit only (Kit No. VULS0001) which contains Lamp, Cushions, and Explanation Sheet.

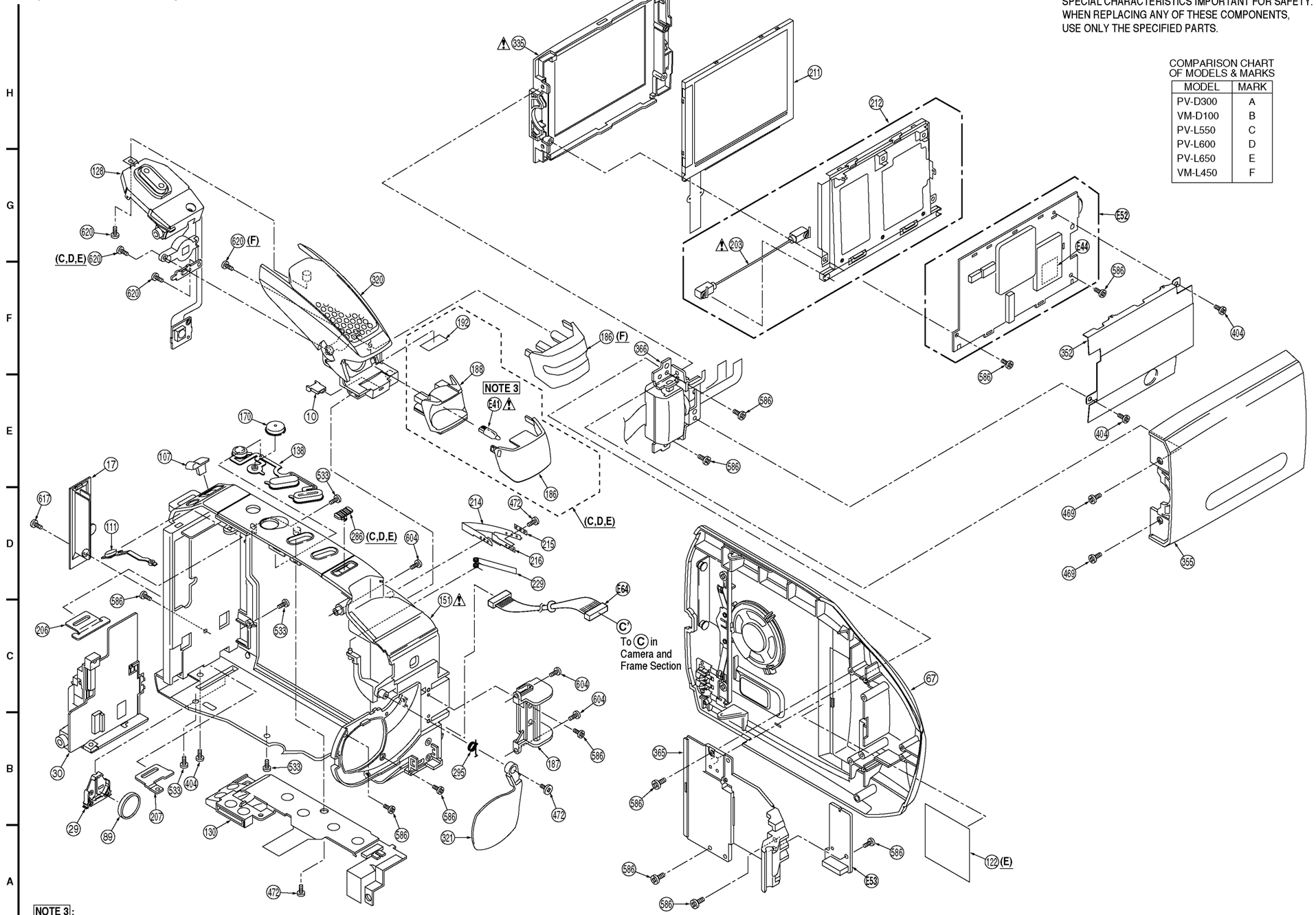
11.4. FRAME AND LCD SECTION (C, D, E, F)

❸ FRAME AND LCD SECTION
(Model: C, D, E, F)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



NOTE 3:
Lamp is supplied as a Lamp Kit only (Kit No. VULS0001) which contains Lamp, Cushions, and Explanation Sheet.

11.5. COLOR EVF SECTION (A)

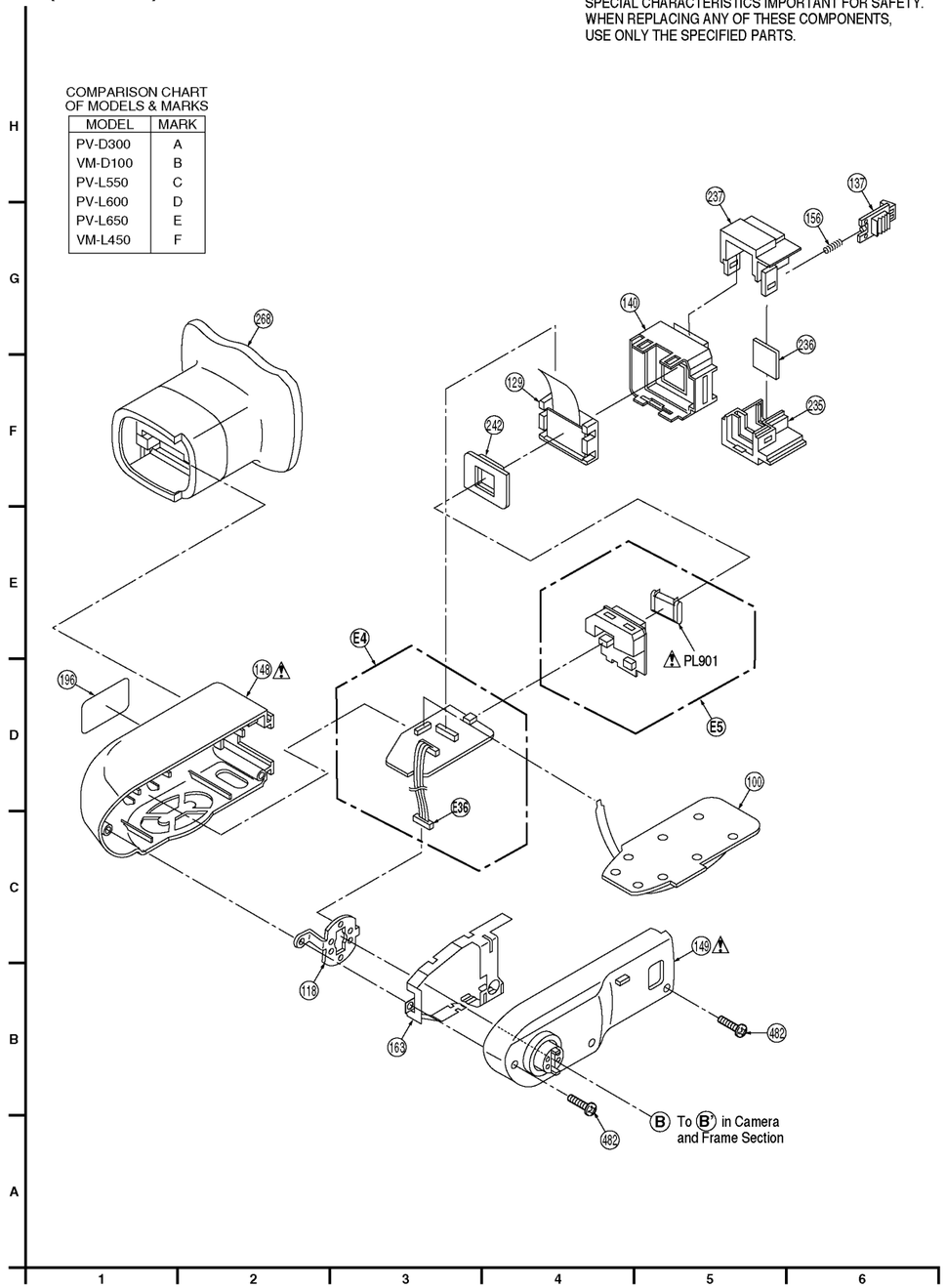
❹ COLOR EVF SECTION (Model: A)

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



11.6. EVF SECTION (B, C, D, E, F)

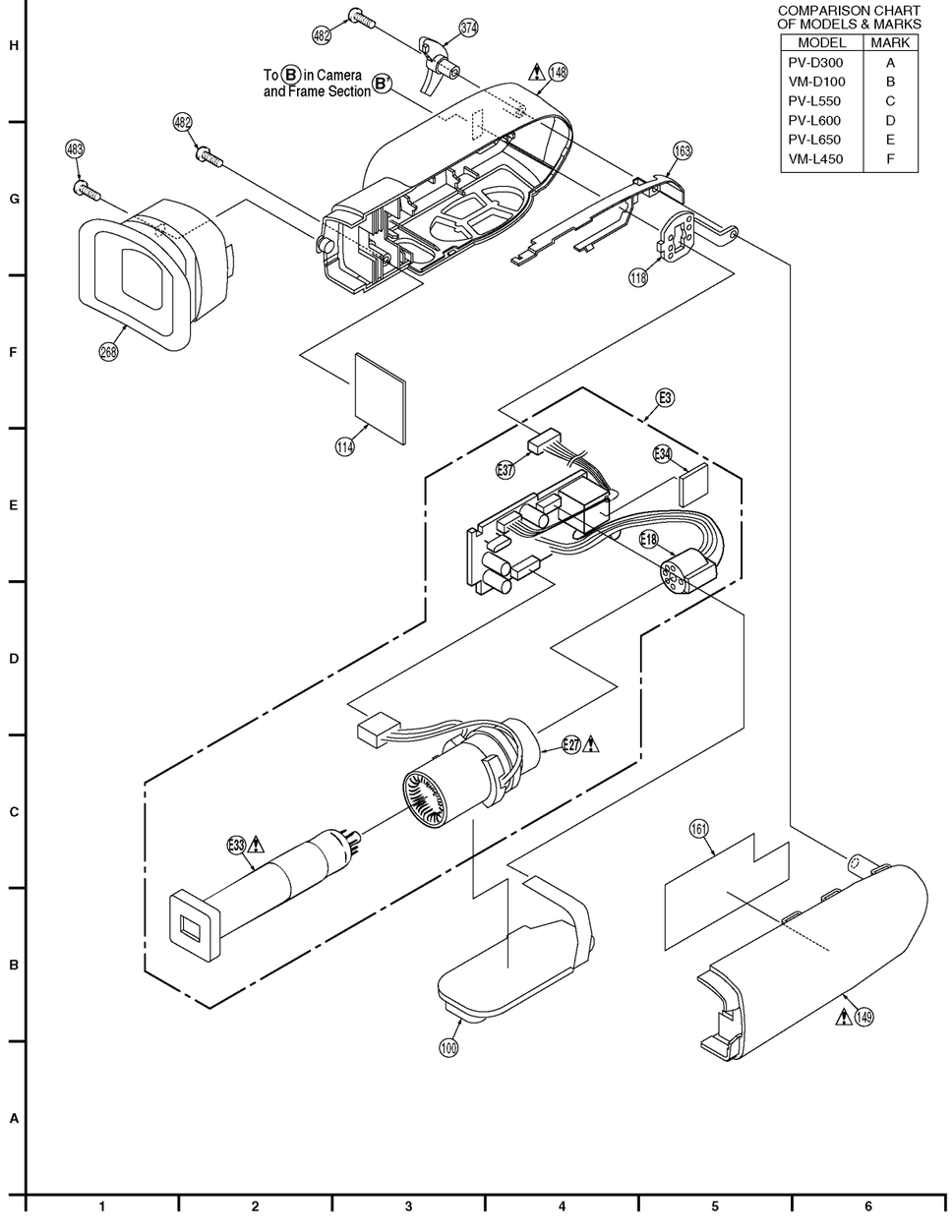
❹ EVF SECTION
(Model: B, C, D, E, F)

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

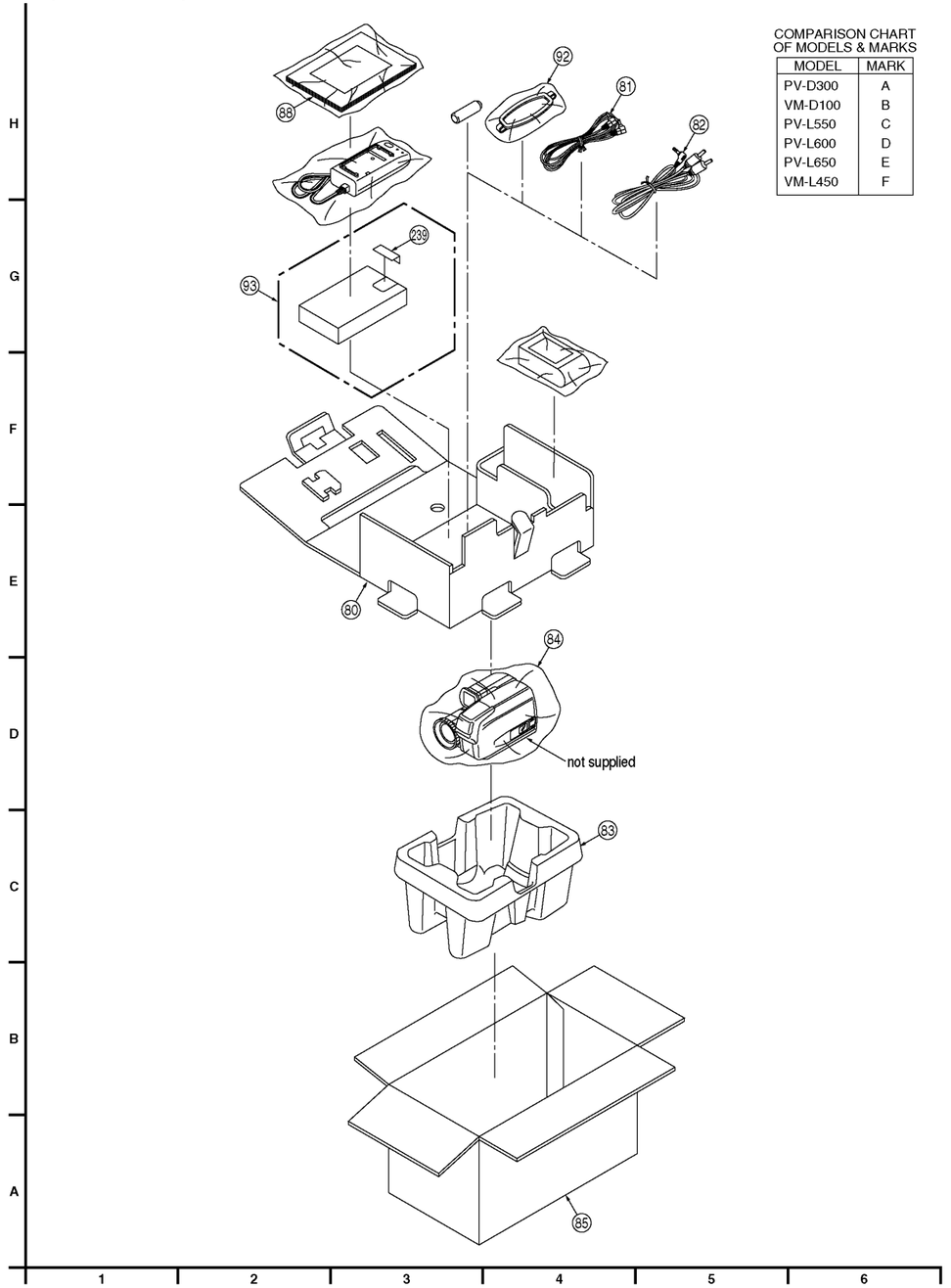
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F



11.7. PACKING PARTS AND ACCESSORIES SECTION (A, B)

❺ PACKING PARTS AND ACCESSORIES SECTION
(Model: A, B)

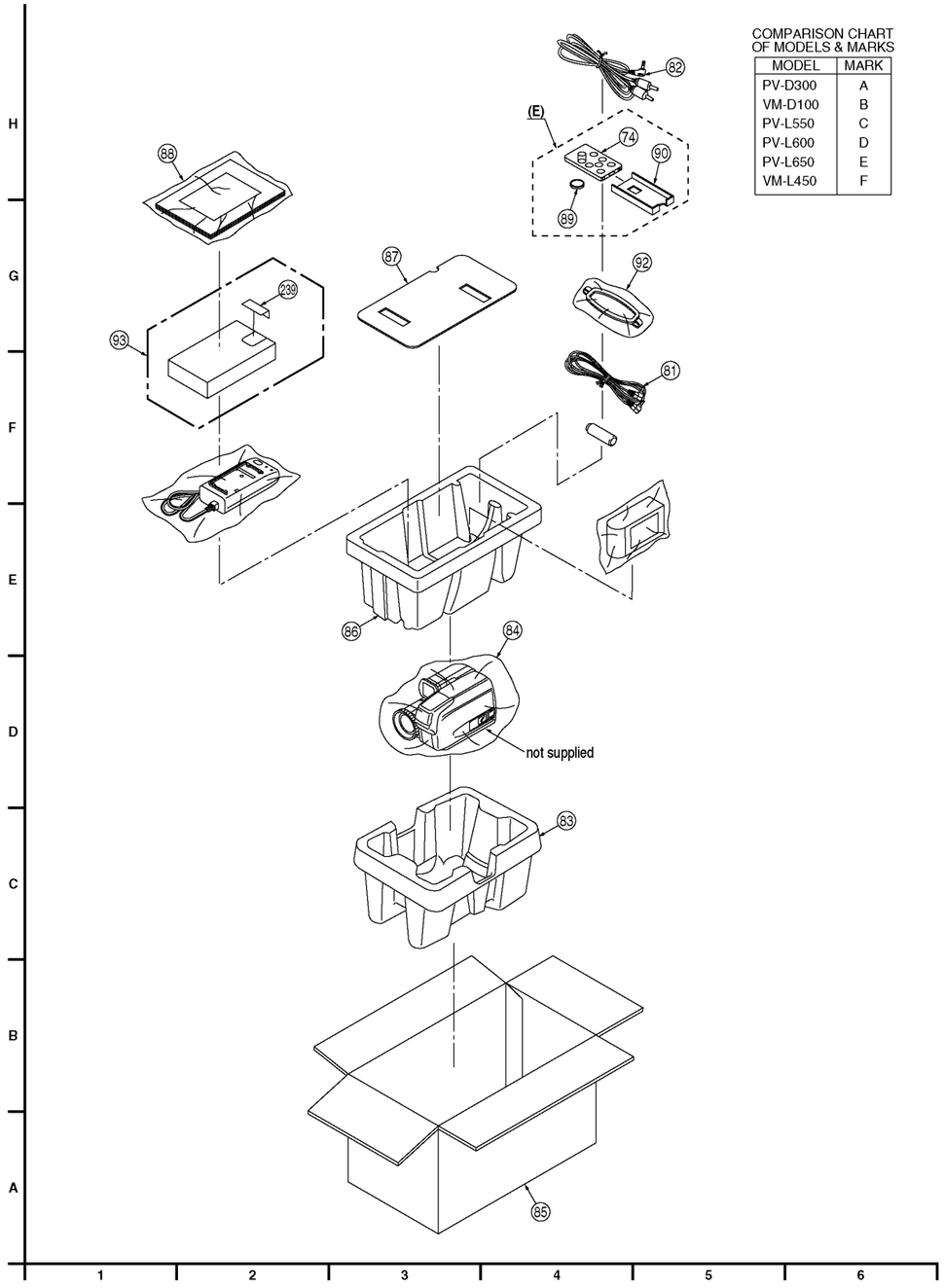


COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

11.8. PACKING PARTS AND ACCESSORIES SECTION (C, D, E, F)

❺ PACKING PARTS AND ACCESSORIES SECTION
(Model: C, D, E, F)



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

12 REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

12.1. REPLACEMENT NOTES

12.1.1. General Notes

1. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. SPECIAL NOTE

   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.

6. Parts with mark "VED" in the Remarks column are supplied from VED. Others are supplied from MKE.

12.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.

2. Abbreviation

   RTL: Retention Time Limited

   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

3. Cut Washers (Ref No. 409, 411, and 419) are not reusable. If removed, install a new one.

4. Head Amp C.B.A. which is located on the Lower Cylinder is supplied as a Cylinder Unit only.

   However, IC3501 (AN3365SB-E1) is available separately as a replacement part.

5. After replacing Mechanism Cassis Ass'y (Ref. No. 49) or Mechanism Chassis Sub Ass'y (Ref. No. 213), perform the Tape Interchangeability Adjustment procedures. Refer to "TAPE INTERCHANGEABILITY ADJUSTMENT."

12.1.3. Electrical Replacement Notes

1. Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views.

2. The parts with "■" mark are supplied individually or as a unit. The parts with "▲" mark are supplied individually or as a unit, and are included in "■" parts listed directly above in the parts list.

3. Unless otherwise specified;

   All resistors are in Ω, 1/4 W, ±5 %, carbon, K = 1 000 Ω, M = 1 000 kΩ.

   All capacitors are in µF, P = µµF, ±10 %.

   All coils are in µH, M = 1 000 µH, ±10 %.

4. Abbreviation

   RTL: Retention Time Limited

   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

   NR: Non Repairable Board Ass'y

   MGF CHIP: Metal Glaze Film Chip

   C CHIP: Ceramic Chip

   COMPLX CMP: Complex Component

   W FLMPRF: Wirewound Flameproof

   C.B.A.: Circuit Board Assembly

   P.C.B.: Printed Circuit Board

   E.S.D.: Electrostatically Sensitive Devices

5. SERVICE OF CHIP PARTS

   When servicing chip parts, please use a soldering iron of less than 30 watts. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.

6. The parts with "●" are 0 Ω resistor. When replacing, a wire can be substituted for a 0 Ω resistor.

7. Lamp Kit (E41) replacement note for models PV-D300, PV-L550, PV-L600, PV-L650:

   Lamp is supplied as a Lamp Kit only (Kit No. VULS0001) which contains Lamp, Cushions, and Explanation Sheet.

8. IC306 replacement note:

   When replacing this IC, be sure to write the initial data with PC-EVR Adjustment Program.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

12.2. MECHANICAL REPLACEMENT PARTS LIST

12.2.1. MECHANISM PARTS ON CHASSIS

Ref. No.	Part No.	Part Name & Description	Remarks
7	VDGW0072	TAKE GEAR	1
9	VEGS0438	CYLINDER UNIT	1
10	VGLW0088	TALLY LED PANEL	3
11	VEHW0032	UPPER CYLINDER UNIT	1
12	VEMS0337	CAPSTAN UNIT	1
13	LSEM0028	FOCUS MOTOR UNIT	2
15		HAND STRAP,NYLON	
	LSGQ0020	(A,C,D,E)	2
	LSGQ0021	(B,F)	2
16	VFLW0414	OPTICAL FILTER	2
17	VKFW0066	EVR COVER	3
22	VMAW0642	SPRING SUPPORTER	2
23	VMBS0717	PRE-LOAD SPRING	1
29	VMDW0341	BACK UP COVER	3
30		BATTERY CATCHER UNIT	
	LSEQ0549	(A,B)	3
	LSEQ0550	(C,D,E,F)	3
31	LSMG0050	FILTER RUBBER	2
32	VEMW0078	LOADING MOTOR UNIT,2W	1
33	VMAW0745	P.C.B. ANGLE	1
37	VMAW0744	MECHANISM SUPPORT ANGLE	1
40		CASSETTE UP UNIT	
	VXYS1370	(A,B)	1
	VXYS1369	(C,D,E,F)	1
44	VXDW0196	TAKEUP POST UNIT	1
45	VXDW0187	SUPPLY POST UNIT	1
48	LSXN0007	LENS UNIT	2
49	VXKS0900	MECHANISM CHASSIS ASS'Y	1 RTL
50		VCR MECHANISM CHASSIS ASS'Y	
	VXKS0896	(A,B)	2 RTL
	VXKS0897	(C,D,E,F)	2 RTL
51	VXLW0080	TENSION UNIT	1
52	VXLW0082	PINCH ARM UNIT	1
54	VXLS1124	IDLER ARM UNIT	1
55	VXPW0025	REEL TABLE UNIT	1
56	VXPW0024	REV CLUTCH	1
58	VXLW0078	TAKEUP LOADING ARM UNIT	1
59	VXLW0077	SUPPLY LOADING ARM UNIT	1
61		COLOR ELECTRONIC VIEWFINDER UNIT	
	LSYK0234	(A)	2
		ELECTRONIC VIEWFINDER UNIT	
	LSYK0231	(B,F)	2
	LSYK0232	(C,D,E)	2
67		CASSETTE COVER UNIT	
	LSYK0220	(A)	3
	LSYK0219	(B)	3
	LSYK0249	(C,D)	3
	LSYK0250	(E)	3
	LSYK0248	(F)	3
74		INFRARED REMOTE CONTROL UNIT	
	VSQW0038	(E)	5
80		ACCESSORY PACKING CASE,PAPER	
	VPGW0754	(A,B)	5
81	VJAW0029	DC CABLE W/PLUG,6V	5
	OR VJAW030		
82	VJAW0039	AUDIO/VIDEO CABLE W/PLUG,0V	5
83		CUSHION,PAPER	
	VPNW0049	(A,B)	5
	VPNW0050	(C,D,E,F)	5
84	VPFW0049	BAG,POLYETHYLENE	5
85		PACKING CASE,PAPER	
	LSPG0751	(A)	5
	LSPG0750	(B)	5
	LSPG0748	(C)	5
	LSPG0785	(D)	5
	LSPG0749	(E)	5
	LSPG0747	(F)	5
86		ACCESSORY CUSHION,PAPER	
	VPNW0051	(C,D,E,F)	5
87		ACCESSORY PAD	
	VPGW0755	(C,D,E,F)	5
88		FAN BAG	
	LSQF0201	(A)	5
	LSQF0205	(B)	5
	LSQF0202	(C,E)	5
	LSQF0215	(D)	5
	LSQF0206	(F)	5
89		BATTERY UNIT	
	VSBW0004	(A,B,C,D,F)	3
	VSBW0004	(E)	3,5
90		REMOTE CONTROL HOLDER	
	VGQ6893	(E)	5
92	LSFC0012	SHOULDER BELT	5
93	VYMW0009	CASSETTE ADAPTOR	5
100	VEQW0163	VCR OPERATION UNIT	4
106	VGLW0090	POWER LED PANEL	2
107	VGTW0575	EJECT KNOB	3
109	VGTW0603	TAPE CHANGE KNOB	2
111	LSGU0136	DISPLAY BUTTON	3
114		EVF DUST COVER	
	LSDL0083	(B,C,D,E,F)	4
115		SIDE CASE L,ABS RESIN	
	LSKM0349	(A,C,D)	⚠ 2
	LSKM0348	(B,F)	⚠ 2
	LSKM0387	(E)	⚠ 2
117	VMAW0749	TRIPOD FRAME	2
118		EVF PLATE,STEEL	
	VMAW0677	(A)	4
	LSMA0416	(B,C,D,E,F)	4
119	VMAW0750	EVF ANGLE	2
122		BARRIER	
	VMZW0685	(E)	3
128		MICROPHONE UNIT	
	LSXM0005	(A,C,D)	3
	LSXM0004	(B,F)	3
	LSXM0007	(E)	3
129		LIQUID CRYSTAL DISPLAY PANEL	
	LCX032AKB-8	(A)	4
130		TOP OPERATION UNIT	
	LSEQ0553	(A,C,D,E)	3
	LSEQ0554	(B,F)	3
131	LSEQ0556	SIDE L FLEXIBLE PRINTED CIRCUIT UNIT	2
137		LOCK KNOB	
	VGTW0547	(A)	4
138	LSGU0137	TOP OPERATION BUTTON	3
140		LCD MASK	
	LSKF0288	(A)	4
148		EVF CASE A,ABS RESIN	
	LSKM0353	(A)	⚠ 4
	LSKM0302	(B,F)	⚠ 4
	LSKM0267	(C,D,E)	⚠ 4
149		EVF CASE B,ABS RESIN	
	LSKM0354	(A)	⚠ 4
	LSKM0304	(B,F)	⚠ 4
	LSKM0268	(C,D,E)	⚠ 4
151		SIDE CASE R,ABS RESIN	
	LSKM0342	(A)	⚠ 3
	LSKM0341	(B)	⚠ 3
	LSKM0344	(C,D)	⚠ 3
	LSKM0345	(E)	⚠ 3
	LSKM0343	(F)	⚠ 3
156		LOCK SPRING	
	VMBW0235	(A)	4
161		CAUTION LABEL	
	LSQL0878	(B,C,D,E,F)	4
163		EVF ESD PLATE,STEEL	
	VSCW0869	(A)	4

Ref. No.	Part No.	Part Name & Description	Remarks
	LSSC0324	(B,C,D,E,F)	4
164		CAUTION LABEL	
	VQLS3464	(B,C,D,E,F)	2
170	LSGU0124	EIS BUTTON	3
182	LSQL0877	LENS LABEL	2
183	VMDW0510	ARM HOLDER	2
184	LSSC0326	SENSOR SHIELD CASE,STEEL	2
185		INFRARED PANEL	
	VGLW0089	(E)	2
186		LIGHT PROTECTOR	
	VGFW0020	(A,C,D,E)	3
		LIGHT COVER	
	LSKM0265	(B,F)	3
187	VMDW0509	HINGE R	3
188		LIGHT REFLECTOR	
	VMRW0025	(A,C,D,E)	3
192		LIGHT SHEET,AL	
	VSCW0935	(A,C,D,E)	3
196		EVF LABEL	
	VQLW1735	(A)	4
203		LAMP UNIT	
	LSXY0146	(C,D,F)	⚠ 3
	LSXY0157	(E)	⚠ 3
206	VMAW0752	STRAP ANGLE A	3
207	VMAW0753	STRAP ANGLE B	3
209	VMAW0754	GRIP ANGLE	2
211		LIQUID CRYSTAL DISPLAY PANEL UNIT	
	LSXY0126	(C)	3
	VXYW0201	(D,F)	3
	VXYW0210	(E)	3
212		LEAD LIGHT PANEL UNIT	
	LSXY0154	(C,D,F)	3
	LSXY0155	(E)	3
213	VXKS0895	MECHANISM CHASSIS SUB ASS'Y	1
214	LSMZ0213	TAPE GUIDE	3
215	LSMZ0210	GUIDE COVER	3
216	LSMZ0214	PROTECTOR	3
219		LENS RING UNIT	
	LSYK0236	(A,C,D,E)	2
	LSYK0235	(B,F)	2
221	LSEM0025	ZOOM MOTOR UNIT	2
228	VMDW0357	BULGE CHIP	1
229	VMBW0333	TAPE GUIDE SPRING	3
234	LSMT0045	LENS RUBBER	2
235		EVF LENS COVER B	
	VMDW0451	(A)	4
236		PROTECT PLATE,STEEL	
	LSKG0007	(A)	4
237		EVF LENS COVER A	
	VMDW0450	(A)	4
239	VKFS1021	BATTERY COMPARTMENT LID	5
242		LCD CUSHION	
	VMGW0204-Y	(A)	4
245	VDVW0003	CAPSTAN BELT	1
250		LIGHT CAUTION LABEL	
	LSQL0880	(A,C,D,E)	⚠ 2
268		EYE CAP UNIT	
	VYKW2901	(A)	4
	LSYK0238	(B,C,D,E,F)	4
273	VXYW0195	REDUCTION GEAR UNIT	1
274	VDGW0063	REDUCTION GEAR A	1
275	VDGW0064	REDUCTION GEAR B	1
277	VXYW0194	MAIN CAM UNIT	1
284	VEQW0294	MANUAL FOCUS VARIABLE RESISTOR UNIT	2
286		LIGHT KNOB	
	LSGT0037	(A,C,D,E)	3
290	VSCW0951	ESD PLATE L,STEEL	2
295	VMBW0306	SHUTTER SPRING	3
297	LSMD0231	LENS PIECE	2
300	VMDW0494	OPENER	1
301	LSML0126	ARM	2
305	LSWZ0008	TUBE	1
307	LSSC0329	LENS ESD PLATE,STEEL	2
309	VMDW0486	PINCH TAPE GUIDE	1
310	VXJW0095	IMPEDANCE ROLLER UNIT	1
312	VEHS0588	AUDIO CONTROL HEAD UNIT	1
313	VMLW0083	PINCH TOGGLE	1
314	VXLW0081	P5 ARM UNIT	1
316	VXLS1125	REV BRAKE ARM UNIT	1
320	VYKW3139	MICROPHONE CASE UNIT	3
321	VKFW0065	WING	3
335		LCD CASE B,ABS RESIN	
	LSKM0332	(C)	⚠ 3
	VKMW1805	(D,F)	⚠ 3
	VKMW1798	(E)	⚠ 3
352		LCD SHIELD CASE,STEEL	
	VSCW0966	(C,D,F)	3
	VSCW0957	(E)	3
355		LCD CASE A UNIT,ABS RESIN	
	LSYK0265	(C,D)	3
	LSYK0266	(E)	3
	LSYK0245	(F)	3
365		CASSETTE FRAME	
	LSMP0224	(C,D,F)	3
	LSMP0225	(E)	3
366		LCD SHAFT UNIT	
	LSXA0301	(C,D,E)	3
	LSXA0300	(F)	3
371	LSSA0002	EARTH CONTACT	1
372	LSMB0168	CONTACT SPRING	1
373	LSMA0336	CONTACT PLATE,STEINLESS	1
374		EVF PIECE	
	LSKM0270	(C,D,E)	4
	LSKM0300	(B,F)	4
375	VDGW0059	MOTOR GEAR	1

12.2.2. SCREWS AND WASHERS

Ref. No.	Part No.	Part Name & Description	Remarks
404	XQN2+BF3FXK	SCREW,STEEL	3
407	XQN16+A32	SCREW,STEEL	1
408	VHDW0124	SCREW W/WASHER,STEEL	1
409	VMXW0217	CUT WASHER,STEEL	1
410	XWGV15Z32G	POLY SLIDER WASHER	1
411	VMXW0213	CUT WASHER,STEEL	1
412	XQN2+B35	SCREW,STEEL	1
413	XQN2+A22	SCREW,STEEL	1
414	XQN14+A32	SCREW,STEEL	1
415	XQN2+B22	SCREW,STEEL	1
416	XQN14+BJ25FZ	SCREW,STEEL	1
417	XQN2+B2	SCREW,STEEL	1
419	VMX2026	CUT WASHER,STEEL	1
421	XQN16+BF4FN	SCREW,STEEL	2
423	XQN16+B3FN	SCREW,STEEL	1
469		SCREW,STEEL	
	XQN2+BF4FXK	(C,D,E,F)	3
472	VHDW0102	SCREW,STEEL	3
473	VHDW0100	SCREW,STEEL	2
481	VMBW0253	WASHER,STEEL	2
482	XQN2+CJ12FXK	SCREW,STEEL	4
483	XQN2+BJ4FXK	SCREW,STEEL	2,4
501	XQN16+CJ5FY	SCREW,STEEL	2
502	XQN16+CJ6	SCREW,STEEL	2
504	XQN2+CF3	SCREW,STEEL	2
533	XQN2+BF5FXK	SCREW,STEEL	2,3
586	XQN2+BJ5FXK	SCREW,STEEL	2,3
604	XQN2+BJ8FXK	SCREW,STEEL	3
617	XQN2+BJ10FXK	SCREW,STEEL	3
620	XQN2+BJ6FXK	SCREW,STEEL	2
628	XQN16+B3FU	SCREW,STEEL	1
630	VMXW0175	WASHER,NYLON	2
632	XQN14+B3	SCREW,STEEL	1

Ref. No.	Part No.	Part Name & Description	Remarks
635	XQN16+C5FU	SCREW,STEEL	1
637	XQN2+CF10FU	SCREW,STEEL	2
638	VHDW0120	SCREW,STEEL	2
639	LSHD0049	SCREW,STEEL	2
640	LSHD0054	SCREW,STEEL	1

12.2.3. SERVICE FIXTURE AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFKS002	LIGHT BOX W/CHARTS SET	
	VFKS002A	GLAY SCALE CHART	
	VFKS002B	COLOR BAR CHART	
	VFKS002C	REGISTRATION CHART	
	VFKS002D	RESOLUTION CHART	
	VFKS002Y	LIGHT BOX	
	VFKS003-N	REFLECTION CHART SET	
	VFKS003A	GLAY SCALE CHART	
	VFKS003B	COLOR BAR CHART	
	VFKS003C	REGISTRATION CHART	
	VFKS003D	RESOLUTION CHART	
	VFK1164TFWC2	WHITE CHART	VED
	VFK1164TFGS2	GRAY SCALE CHART	VED
	VFK1164TFCB2	COLOR BAR CHART	VED
	VFK1164TFCT2	CONVERSION FILTER	VED
	VFK1164LBX1	LIGHT BOX	VED
	VFK1164TCM02	COLLIMATOR(INFINITY LENS) (WITH FOCUS CHART)	VED
	VFK1164TLA01	LAMP	VED
	VFK1164TAR58	ATTACHMENT RING (58mm)	VED
	VFK1164TAR55	ATTACHMENT RING (55mm)	VED
	VFK1164TAR52	ATTACHMENT RING (52mm)	VED
	VFK1164TAR49	ATTACHMENT RING (49mm)	VED
	VFK1164TAR46	ATTACHMENT RING (46mm)	VED
	VFK1164TAR43	ATTACHMENT RING (43mm)	VED
	VFK1164TAR37	ATTACHMENT RING (37mm)	VED
	VFK1164TAR3A	ATTACHMENT RING (30.5mm)	VED
	VFK1164TAR27	ATTACHMENT RING (27mm)	VED
	VFMS0004H6C	VHS-C ALIGNMENT TAPE	
	VFMW0001C	VHS-C ALIGNMENT TAPE	
	VFK27	HEAD CLEANING STICK	
	VFKS0081	GREASE	
	LSUQ0002	GREASE	
	VFK1024	MOLYTONE GREASE	
	VUVS0007	EXTENSION CABLE 12P	
	LSUA0020	EXTENSION CABLE 20P	
	VUVS0012	EXTENSION CABLE 22P	
	VUVS0015	EXTENSION CABLE 28P	
		TP BOARD KIT	
	LSUP0005A	TP ADJUSTMENT CABLE 40P	
	VFKW0123B	TP ADJUSTMENT PCB 40P	
	LSUP0005C	TP CLIP 36P	
	VFKW0066	A.W.B. ADJUSTMENT FIXTURE	
	VFKW0116	COLOR CHIP CHART	
	VJAW0032	AUDIO VIDEO CABLE	
	VFKW1000	CAAS KIT	
	VFKW1000A	INTERFACE BOX	
	VFKW1000B	CAMERA CONNECTING CABLE	
	VFKW1000C	9PIN RS-232C CABLE	
	VFKW1000D	25PIN RS-232C CABLE	
	VHDW0125	LOCK SCREW	
	LSEQ0556	SIDE L FPC UNIT	
		BATTERY CATCHER UNIT	
	LSEQ0549	(A,B)	
	LSEQ0550	(C,D,E,F)	
		EVF UNIT	
	LSYK0232	(B,C,D,E,F)	
		COLOR EVF UNIT	
	LSYK0234	(A,B)	
	LSEP8033A1	RELAY C.B.A.	

12.3. ELECTRICAL REPLACEMENT PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E1	LSEP8024E1	MAIN C.B.A.	■ E.S.D. RTL
	(A)		
E1	LSEP8024D1	MAIN C.B.A.	■ E.S.D. RTL
	(B)		
E1	LSEP8024A1	MAIN C.B.A.	■ E.S.D. RTL
	(C)		
E1	LSEP8024F1	MAIN C.B.A.	■ E.S.D. RTL
	(D)		
E1	LSEP8024C1	MAIN C.B.A.	■ E.S.D. RTL
	(E)		
E1	LSEP8024B1	MAIN C.B.A.	■ E.S.D. RTL
	(F)		
E2	LSEQ0547	CCD C.B.A.	■ E.S.D. RTL
E3	LSEQ0558	ELECTRONIC VIEWFINDER C.B.A.	■ RTL
	(B,C,D,E,F)		
E4	LSEP8035A1	COLOR ELECTRONIC VIEWFINDER A C.B.A.	■ RTL
	(A)		
E5	VEPW1671A1	COLOR ELECTRONIC VIEWFINDER B C.B.A.	■ RTL
	(A)		
E52	LSEP8030A1	LIQUID CRYSTAL DISPLAY C.B.A.	■ RTL
	(C)		
E52	LSEP8030B1	LIQUID CRYSTAL DISPLAY C.B.A.	■ RTL
	(D,F)		
E52	LSEP8031A1	LIQUID CRYSTAL DISPLAY C.B.A.	■ RTL
	(E)		
E53	LSEP8033A1	RELAY C.B.A.	■
	(C,D,E,F)		

12.3.1. MAIN C.B.A. ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC301	MN67324	IC, LOGIC DIGITAL SIGNAL PROCESSOR	E.S.D.
IC306	BR9040FV-DE2	IC, 4K EEP ROM	E.S.D.
IC308	MN102L62FCA	IC, 16BIT MICROCONTROLLER	E.S.D.
IC309	BA10324AFVE1	IC, LINEAR HALL/IRIS AMP	
	OR LM324DB	IC, LINEAR HALL/IRIS AMP	
IC602	MN5293-1	IC, CMOS GATE ARRAYS TIMING SIGNAL GENERATOR	E.S.D.
IC603	MN3112SA-E1	IC, CMOS STANDARD LOGIC CCD V DRIVE	E.S.D.
IC605	AN2109NFHQ	IC, LINEAR SAMPLING HOLD	
IC701	LB1837M-TE-L	IC, LINEAR MOTOR DRIVE	
	OR LB1837MLTEL3	IC, LINEAR MOTOR DRIVE	
	OR LB1837MTEL3	IC, LINEAR MOTOR DRIVE	
IC702	LB1837M-TE-L	IC, LINEAR MOTOR DRIVE	
	OR LB1837MLTEL3	IC, LINEAR MOTOR DRIVE	
	OR LB1837MTEL3	IC, LINEAR MOTOR DRIVE	
IC1001	BA9710KV	IC, LINEAR POWER CONTROL	
IC2001	AN3897FH	IC, LINEAR CYLINDER/CAPSTAN MOTOR DRIVE CONTROL	
IC2002	UN224-TX	IC, LINER POWER TRANSISTOR MOTOR DRIVE	
IC2003	UN224-TX	IC, LINER POWER TRANSISTOR MOTOR DRIVE	
IC3001	AN2401NFH	IC, LINEAR Y/C REC/PB PROCESS	
IC3002	MN38663S	IC, CCD 1H DELAY	E.S.D.
IC4001	BA7757BK	IC, LINEAR AUDIO REC/PB PROCESS	
IC6001	MN101D02FWD1	IC, 8BIT MICROCONTROLLER	E.S.D.
IC6002	R3111Q391ATR	IC, LINEAR RESET	
	OR S80839ANNPT2	IC, LINEAR RESET	
	OR XC61CN3902NR	IC, LINEAR RESET	
IC6005	S3510AEFJTB	IC, PERIPHERAL MCU CLOCK IN	E.S.D.
IC6006	RH5RE45AA-T1	IC, PERIPHERAL MCU+4.5 REGULATOR	E.S.D.
	OR XC62FP4502PR	IC, PERIPHERAL MCU +4.5 REGULATOR	E.S.D.
IC6007	BA6288FS-E2	IC, LINEAR LOADING MOTOR DRIVE	
IC6203	CNB10010RL	TAKEUP REEL SENSOR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q301	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q302	2SC3931	CHIP	
Q303	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q305	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q306	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q307	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q310	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q311	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q617	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q703	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1001	DTA114EU	CHIP	
	OR UN5111	CHIP	
Q1002	DTA144EU	CHIP	
	OR UN5113	CHIP	
Q1003	DTA114TU	CHIP	
	OR UN5115	CHIP	
Q1005	2SB1628-T1ZX	CHIP	
	OR 2SB1628-T1ZY	CHIP	
Q1006	MPL1-TL	CHIP	
Q1007	2SB1424T100P	CHIP	
	OR 2SB1424T100Q	CHIP	
Q1008	MPL1-TL	CHIP	
Q1009	MPL1-TL	CHIP	
Q1010	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1011	IMX1T108	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q1012	2SB1073	CHIP	
	OR 2SB1386T100Q	CHIP	
	OR 2SB1386T100R	CHIP	
Q1014	2SB1073	CHIP	
	OR 2SB1386T100Q	CHIP	
	OR 2SB1386T100R	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q1015	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1020	2SB1073	CHIP	
	OR 2SB1386T100Q	CHIP	
	OR 2SB1386T100R	CHIP	
	(C,D,E,F)		
Q1021	DTC124EU	CHIP	
	OR UN5212	CHIP	
	(C,D,E,F)		
Q1101	2SA2014-TD	CHIP	
	(A,C,D,E)		
Q1102	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
	(A,C,D,E)		
Q1103	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
	(A,C,D,E)		
Q1104	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
	(A,C,D,E)		
Q1105	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
	(A,C,D,E)		
Q1106	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
	(A,C,D,E)		
Q3003	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3004	2SC3931	CHIP	
Q3005	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3021	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3022	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3027	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3028	2SC4081T106R	CHIP	
	OR2SD1819A	CHIP	
	(A,C,D,E,F)		
Q3029	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
	(A,C,D,E,F)		
Q4002	IMZ1T108	COMPLX CMP SI NPN/PNP CHIP	
	OR XN4601	COMPLX CMP SI NPN/PNP CHIP	
Q4003	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q4004	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q4007	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q4008	2SD2432(R)	CHIP	
	OR 2SD602(R)	CHIP	
	OR 2SD602A(R)	CHIP	
Q4009	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q4010	2SB1585	CHIP	
	OR 2SB970	CHIP	
Q4011	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q6004	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q6005	DTC124TU	CHIP	
	OR UN5217	CHIP	
Q6006	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
	(E)		
Q6008	DTC124TU	CHIP	
	OR UN5217	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q6009	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q6010	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q6011	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q6012	2SK1958	F.E.T. CHIP	
Q6013	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6018	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q6021	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q6022	2SC4081T106R	CHIP	
	OR2SD1819A	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1001	RD12S-T1B	ZENER CHIP 12V	
D1002	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1004	EP10QY03TE8L	CHIP	
D1005	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1006	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1007	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1008	MA728	CHIP	
D1101	RD12S-T1B	ZENER CHIP 12V	
	(A,C,D,E)		
D1102	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
	(A,C,D,E)		
D4001	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D4002	MA3120WA	ZENER CHIP 12V	
D6001	DAN202UT	CHIP	
	OR MA142WK	CHIP	
D6005	DAP202UT	CHIP	
	OR MA142WA	CHIP	
D6008	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D6015	DA204U	CHIP	
	OR MA143	CHIP	
D6019	MA111	CHIP	
	OR 1SS355TE-17	CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R301	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R302	VRJSD3D6800	MGF CHIP +-0.5% 1/16W 680	
R303	ERJ3GEYG102V	MGF CHIP +-2% 1/16W 1K	
R304	VRJSD3D2201	MGF CHIP +-0.5% 1/16W 2.2K	
R305	VRJSD3D2201	MGF CHIP +-0.5% 1/16W 2.2K	
R306	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R307	ERJ3GEYG103V	MGF CHIP +-2% 1/16W 10K	
R308	ERJ3GEYG391V	MGF CHIP +-2% 1/16W 390	
R309	ERJ3GEYG102V	MGF CHIP +-2% 1/16W 1K	
R310	ERJ3GEYG102V	MGF CHIP +-2% 1/16W 1K	
R311	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R314	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R315	ERJ3GEYG181V	MGF CHIP +-2% 1/16W 180	
R316	ERJ3GEYJ121V	MGF CHIP 1/16W 120	
R317	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R318	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R319	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R320	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R321	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R322	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R323	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R333	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R336	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R340	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R342	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R343	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R344	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R345	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R346	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R347	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R348	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R349	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	
R350	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R351	ERJ3GEYJ154V	MGF CHIP 1/16W 150K	
R352	ERJ3GEYJ823V	MGF CHIP 1/16W 82K	
R353	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R355	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R356	ERJ3GEYJ394V	MGF CHIP 1/16W 390K	
R357	ERJ3GEYJ474V	MGF CHIP 1/16W 470K	
R358	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R359	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R360	ERJ3GEYJ331X	MGF CHIP 1/16W 330	
R361	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R362	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R363	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R364	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R365	ERJ3GEYK225V	MGF CHIP +-10% 1/16W2.2M	
R366	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R367	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R368	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R369	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R370	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R372	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R373	ERJ3GEYJ303V	MGF CHIP 1/16W 30K	
R374	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R375	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R376	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R377	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R378	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R379	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R380	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R381	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R382	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R383	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R384	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R385	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R386	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R387	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R388	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R389	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R390	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R391	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R393	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R394	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R395	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R399	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R402	ERJ3GEYG472V	MGF CHIP +-2% 1/16W 4.7K	
R427	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R431	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R432	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R436	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R603	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R605	ERJ3GEYJ331X	MGF CHIP 1/16W 330	
R608	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R609	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R613	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R616	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R617	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R618	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●

Ref. No.	Part No.	Part Name & Description	Remarks
R619	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R620	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R623	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R625	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R630	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R635	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R639	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R641	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R643	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R644	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R645	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R646	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R650	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R651	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R652	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R653	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R655	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R656	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R659	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R662	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R677	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R680	ERJ3GEYJ331X	MGF CHIP 1/16W 330	
R683	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R684	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R686	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R701	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R702	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R703	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R704	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R705	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R706	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R707	ERJ8GEYJ101V	MGF CHIP 1/8W 100	
R708	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R709	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R710	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R711	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R712	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R713	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R714	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R715	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R718	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R719	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R720	ERJ3GEYJ114V	MGF CHIP 1/16W 110K	
R721	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R722	ERJ3GEYJ114V	MGF CHIP 1/16W 110K	
R723	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	
R724	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	
R726	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R730	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R732	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
R734	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R735	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	
R736	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	
R737	ERJ3GEYJ114V	MGF CHIP 1/16W 110K	
R738	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R739	ERJ3GEYJ114V	MGF CHIP 1/16W 110K	
R740	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R743	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R744	ERJ8GEYJ3R9V	MGF CHIP 1/8W 3.9	
R745	ERJ8GEYJ3R9V	MGF CHIP 1/8W 3.9	
R746	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R747	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R748	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R749	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R750	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R751	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R756	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R757	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R758	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R1003	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R1004	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1006	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R1007	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	

Ref. No.	Part No.	Part Name & Description	Remarks
R1008	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1009	VRJSD3D1801	MGF CHIP +-0.5% 1/16W 1.8K	
R1010	VRJSD3D1801	MGF CHIP +-0.5% 1/16W 1.8K	
R1011	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R1012	VRJSD3D5101	MGF CHIP +-0.5% 1/16W 5.1K	
R1013	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1014	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1015	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R1016	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R1017	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R1019	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R1020	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R1021	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R1022	ERJ3GEYJ270V	MGF CHIP 1/16W 27	
R1023	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R1024	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1025	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R1026	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R1027	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R1028	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R1029	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R1030	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R1031	VRJSD3D6801	MGF CHIP +-0.5% 1/16W 6.8K	
R1032	VRJSD3D2401	MGF CHIP +-0.5% 1/16W 2.4K	
R1033	VRJSD3D22R0	MGF CHIP +-0.5% 1/16W 22	
R1034	VRJSD3D5601	MGF CHIP +-0.5% 1/16W 5.6K	
R1035	VRJSD3D2701	MGF CHIP +-0.5% 1/16W 2.7K	
R1036	VRJSD3D68R0	MGF CHIP +-0.5% 1/16W 68	
R1037	VRJSD3D2702	MGF CHIP +-0.5% 1/16W 27K	
R1038	VRJSD3D1001	MGF CHIP +-0.5% 1/16W 1K	
R1039	VRJSD3D2401	MGF CHIP +-0.5% 1/16W2.4K	
R1040	VRJSD3D6801	MGF CHIP +-0.5% 1/16W 6.8K	
R1041	VRJSD3D2201	MGF CHIP +-0.5% 1/16W 2.2K	
R1043	VRJSD3D1500V	MGF CHIP +-0.5% 1/16W 150	
R1044	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R1045	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R1046	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1047	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1056	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
	(C,D,E,F)		
R1057	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
	(A,B)		
R1058	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
	(C,D,E,F)		
R1059	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
	(C,D,E,F)		
R1060	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R1061	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1062	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R1064	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R1065	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R1067	VRJSD3D1801	MGF CHIP +-0.5% 1/16W 1.8K	
R1068	VRJSD3D1801	MGF CHIP +-0.5% 1/16W 1.8K	
R1069	VRJSD3D33R0	MGF CHIP +-0.5% 1/16W 33	
R1070	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
	(B,F)		
R1101	ERJ8GEYJR56V	MGF CHIP 1/8W 0.56	
	(A,C,D,E)		
R1102	ERJ8GEYJR56V	MGF CHIP 1/8W 0.56	
	(A,C,D,E)		
R1103	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
	(A,C,D,E)		
R1104	ERJ3GEYJ680V	MGF CHIP 1/16W 68	
	(A,C,D,E)		
R1105	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
	(A,C,D,E)		
R1106	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
	(A,C,D,E)		
R1107	ERJ3GEYJ562X	MGF CHIP 1/16W 5.6K	
	(A,C,D,E)		
R1108	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
	(A,C,D,E)		
R1109	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	

Ref. No.	Part No.	Part Name & Description	Remarks
	(A,C,D,E)		
R1110	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
	(A,C,D,E)		
R1111	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
	(A,C,D,E)		
R1112	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
	(A,C,D,E)		
R1113	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
	(A,C,D,E)		
R1114	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
	(A,C,D,E)		
R1601	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(C,D,E,F)		
R1602	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(C,D,E,F)		
R1603	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(C,D,E,F)		
R1604	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(A)		
R1605	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(A)		
R1606	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(A)		
R2001	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R2003	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R2004	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R2008	ERJ8GEYJR33V	MGF CHIP 1/8W 0.33	
R2010	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R2011	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R2012	ERJ3GEYJ184V	MGF CHIP 1/16W 180K	
R2013	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R2014	ERJ3GEYJ684V	MGF CHIP 1/16W 680K	
R2015	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R2016	ERJ3GEYJ684V	MGF CHIP 1/16W 680K	
R2021	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R2022	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R2023	ERJ8GEYJR33V	MGF CHIP 1/8W 0.33	
R2025	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R2026	ERJ3GEYJ820V	MGF CHIP 1/16W 82	
R2027	ERJ3GEYJ471X	MGF CHIP 1/16W 470	
R2028	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R2029	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R2030	ERJ3GEYJ471X	MGF CHIP 1/16W 470	
R2031	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R2032	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R3002	ERJ3GEYJ154V	MGF CHIP 1/16W 150K	
R3003	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R3004	ERJ3GEYJ270V	MGF CHIP 1/16W 27	
R3005	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R3006	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3008	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R3009	ERJ3GEYJ392X	MGF CHIP 1/16W 3.9K	
R3010	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R3011	ERJ3GEYJ271V	MGF CHIP 1/16W 270	
R3015	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R3016	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3017	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R3018	ERJ3GEYJ471X	MGF CHIP 1/16W 470	
R3022	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3023	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3024	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3025	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(A,C,D,E,F)		
R3026	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
	(A,C,D,E,F)		
R3031	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3032	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3033	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R3034	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3035	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R3036	ERJ3GEYJ471X	MGF CHIP 1/16W 470	

Ref. No.	Part No.	Part Name & Description	Remarks
R3037	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R3038	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R3039	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R3040	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R3041	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R3044	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R3045	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3048	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R3050	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3129	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R3130	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R3140	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R3150	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R3151	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R3152	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3153	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R3154	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R3167	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R3169	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R3174	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R3176	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R3180	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R3181	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R3182	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R3183	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R3184	ERJ3GEYJ821X	MGF CHIP 1/16W 820	
R3185	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R3186	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R3187	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
	(A,C,D,E,F)		
R3188	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
	(A,C,D,E,F)		
R3190	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R4001	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R4002	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R4004	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R4005	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R4006	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R4007	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R4008	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R4009	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R4010	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R4011	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R4012	ERJ3GEYJ163V	MGF CHIP 1/16W 16K	
R4013	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R4014	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R4015	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R4016	ERJ3GEYJ183X	MGF CHIP 1/16W 18K	
R4017	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R4018	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R4019	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R4020	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R4021	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R4024	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R4025	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R4027	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R4029	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R4030	ERJ3GEYJ680V	MGF CHIP 1/16W 68	
R4031	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R4032	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R4033	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R4034	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R4035	ERJ3GEYJ101X	MGF CHIP 1/16W 100	
R4037	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R4046	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R4060	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R4061	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R4062	ERJ3GEYJ333X	MGF CHIP 1/16W 33K	
R6004	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R6006	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6007	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
	(B,C,D,E,F)		
R6008	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R6009	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6010	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6011	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6012	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
	(E)		
R6013	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
	(E)		
R6014	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6015	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R6016	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
	(C,D,E,F)		
R6017	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
	(C,D,E,F)		
R6019	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
	(A,B)		
	ERJ3GEYJ474V	MGF CHIP 1/16W 470K	
	(C,D,E,F)		
R6020	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6021	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6022	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R6024	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R6025	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6026	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6027	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R6028	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R6029	ERJ3GEYJ332X	MGF CHIP 1/16W 3.3K	
R6030	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R6031	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R6034	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R6037	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6038	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R6039	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6040	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6041	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6042	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R6043	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6044	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6045	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R6046	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6047	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6048	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6049	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6050	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6051	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6052	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6054	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6056	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6058	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6060	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
	(A,C,D,E)		
R6061	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6062	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6063	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	
R6064	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	
R6066	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R6068	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6070	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	
R6072	ERJ3GEYJ392X	MGF CHIP 1/16W 3.9K	
R6073	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6074	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6075	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6077	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6079	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6080	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6081	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6082	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6083	ERJ3GEYJ681X	MGF CHIP 1/16W 680	
R6084	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6085	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6086	ERJ3GEYJ561X	MGF CHIP 1/16W 560	

Ref. No.	Part No.	Part Name & Description	Remarks
R6087	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6088	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6089	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6090	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6091	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6092	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6093	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6094	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6095	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	
R6096	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
R6099	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6100	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
	(E)		
R6101	ERJ3GEYJ104X	MGF CHIP 1/16W 100K	
	(A,B,C,D,F)		
R6102	VRJSD3D1802	MGF CHIP +-0.5% 1/16W 18K	
R6103	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R6104	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R6108	ERJ3GEYJ564V	MGF CHIP 1/16W 560K	
R6110	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6111	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6112	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6113	ERJ3GEYJ272X	MGF CHIP 1/16W 2.7K	
R6114	ERJ3GEYJ154V	MGF CHIP 1/16W 150K	
R6115	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R6116	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R6119	ERJ8GEYJ101V	MGF CHIP 1/8W 100	
R6120	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6129	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6131	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R6132	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R6133	ERJ3GEYJ223X	MGF CHIP 1/16W 22K	
R6135	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●
R6143	ERJ3GEYJ271V	MGF CHIP 1/16W 270	
R6144	ERJ3GEYJ271V	MGF CHIP 1/16W 270	
R6145	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6146	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R6147	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R6148	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6149	ERJ3GEYJ472X	MGF CHIP 1/16W 4.7K	
R6152	ERJ3GEYJ473X	MGF CHIP 1/16W 47K	
R6162	ERJ3GEYJ102X	MGF CHIP 1/16W 1K	
R6191	ERJ3GEYJ222X	MGF CHIP 1/16W 2.2K	
R6201	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R6202	ERJ3GEYJ103X	MGF CHIP 1/16W 10K	
R6209	ERJ3GEYJ225V	MGF CHIP 1/16W 2.2M	
R6210	ERJ3GEYJ561X	MGF CHIP 1/16W 560	
R6215	ERJ3GEYJ132V	MGF CHIP 1/16W 1.3K	
R6217	ERJ3GEYJ392V	MGF CHIP 1/16W 3.9K	
R6226	ERJ3GEY0R00X	MGF CHIP 1/16W 0	●

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C301	ECUV1H330JCV	C CHIP +-5% 50V 33P	
C302	ECUV1H560JCV	C CHIP +-5% 50V 56P	
C305	ECUV1H470JCV	C CHIP +-5% 50V 47P	
C306	ECST0JY106	TANTALUM CHIP 6.3V 10	
C307	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C309	ECST0JY106	TANTALUM CHIP 6.3V 10	
C310	ECST1CY105	TANTALUM CHIP 16V 1	
C311	ECST1CY105	TANTALUM CHIP 16V 1	
C312	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C314	ECST0JY106	TANTALUM CHIP 6.3V 10	
C315	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C316	ECST0JY106	TANTALUM CHIP 6.3V 10	
C317	ECST0JY106	TANTALUM CHIP 6.3V 10	
C318	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C319	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C320	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C321	ECST0JX226	TANTALUM CHIP 6.3V 22	
C323	ECST0JY106	TANTALUM CHIP 6.3V 10	
C326	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C327	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C335	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C337	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C338	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C339	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C340	ECUE1H103KBV	C CHIP 50V 0.01	
C341	ECUV1H102KBV	C CHIP 50V 1000P	
C342	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C345	ECUV1H471KBV	C CHIP 50V 470P	
C346	ECUV1H471KBV	C CHIP 50V 470P	
C357	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C359	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C360	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C361	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C362	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C363	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C604	ECUV1H150JCV	C CHIP +-5% 50V 15P	
C605	ECST0JX226	TANTALUM CHIP 6.3V 22	
C606	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C607	ECUV1H150JCV	C CHIP +-5% 50V 15P	
C610	ECRJA010A11B	TRIMMER CHIP 100V 10P	
C611	ECUV1H180JCV	C CHIP +-5% 50V 18P	
C613	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C614	ECUV1C474KBM	C CHIP 16V 0.47	
C615	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C616	ECUV1C104KBV	C CHIP 16V 0.1	
C617	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C618	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C623	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C633	ECST1CY225	TANTALUM CHIP 16V 2.2	
C634	ECST1CY225	TANTALUM CHIP 16V 2.2	
C636	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C638	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C639	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C640	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C641	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C642	ECST0JY106	TANTALUM CHIP 6.3V 10	
C643	ECST0JY106	TANTALUM CHIP 6.3V 10	
C644	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C645	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C646	ECST0JX226	TANTALUM CHIP 6.3V 22	
C647	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C651	ECUV1H102KBV	C CHIP 50V 1000P	
C663	ECUV1H100DCV	C CHIP +-0.5P 50V 10P	
C701	ECUE1H103KBV	C CHIP 50V 0.01	
C702	ECUE1H103KBV	CCHIP 50V 0.01	
C703	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C704	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C706	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C707	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C708	ECEV1CA470S	ELECTROLYTIC CHIP 16V 47	
C709	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C1002	ECUV1E223KBV	C CHIP 25V 0.022	
C1003	ECUV1E223KBV	C CHIP 25V 0.022	
C1004	ECST1AY475N	TANTALUM CHIP 10V 4.7	
C1005	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1006	VCUSTBC334KB	C CHIP 16V 0.33	
C1007	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1008	ECUV1H331JCV	C CHIP +-5% 50V 330P	
C1009	ECUV1A105KBN	C CHIP 10V 1	
C1010	ECUV1E223KBV	C CHIP 25V 0.022	
C1011	ECUV1H472KBV	C CHIP 50V 4700P	
C1012	ECUV1H472KBV	C CHIP 50V 4700P	
C1014	ECUV1H221KBV	C CHIP 50V 220P	
C1015	ECUV1H221KBV	C CHIP 50V 220P	
C1016	ECUV1H221KBV	C CHIP 50V 220P	
C1017	ECUV1H221KBV	C CHIP 50V 220P	
C1018	ECUE1H103KBV	C CHIP 50V 0.01	
C1019	ECUE1H103KBV	C CHIP 50V 0.01	
C1020	VCUSQBC105KB	C CHIP 16V 1	
C1021	ECEV1CA470S	ELECTROLYTIC CHIP 16V 47	
C1022	VCUSQFC475MB	C CHIP +-20% 16V 4.7	
C1023	VCUSQAA335KB	C CHIP 10V 3.3	

Ref. No.	Part No.	Part Name & Description	Remarks
C1025	ECUV1H471KBV	C CHIP 50V 470P	
C1026	VCUSQAC105KB	C CHIP 16V 1	
C1027	ECEV0GA470S	ELECTROLYTIC CHIP 4V 47	
C1028	ECUV1H221KBV	C CHIP 50V 220P	
C1029	VCUSQAC105KB	C CHIP 16V 1	
C1030	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1031	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C1032	VCUSQAC105KB	C CHIP 16V 1	
C1033	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1034	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1035	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1036	ECUV1H222KBV	C CHIP 50V 2200P	
C1037	VCUSQAC105KB	C CHIP 16V 1	
C1038	ECEV1CA220S	ELECTROLYTIC CHIP 16V 22	
C1039	ECUV1H331KBV	C CHIP 50V 330P	
C1040	VCUSQAC105ZF	C CHIP +80%-20% 16V 1	
C1041	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10	
C1042	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47	
C1044	ECUV1A105KBN	CCHIP 10V 1	
C1045	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1046	VCUSQAC105KB	C CHIP 16V 1	
C1047	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
	(C,D,E,F)		
C1049	ECUV1H471KBV	C CHIP 50V 470P	
C1050	ECUV1H222KBV	C CHIP 50V 2200P	
C1051	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1053	ECUV1C104KBN	C CHIP 16V 0.1	
C1054	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1055	ECUV1A105KBN	C CHIP 10V 1	
	(C,D,E,F)		
C1060	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1101	ECUV0J225KBN	C CHIP 6.3V 2.2	
	(A,C,D,E)		
C1102	ECUV1H102KBV	C CHIP 50V 1000P	
	(A,C,D,E)		
C1103	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
	(A,C,D,E)		
C2001	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2002	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2003	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2007	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C2008	ECUV1E333KBN	C CHIP 25V 0.033	
C2010	ECUV1E683KBN	C CHIP 25V 0.068	
C2011	VCUSQAC334KB	C CHIP 16V 0.33	
C2012	ECUV1E473KBN	C CHIP 25V 0.047	
C2013	ECUV1E473KBN	C CHIP 25V 0.047	
C2015	ECUV1H152KBV	C CHIP 50V 1500P	
C2016	ECUV1H331KBV	C CHIP 50V 330P	
C2017	VCUSQAC105KB	C CHIP 16V 1	
C2021	ECUV1E473ZFV	C CHIP +80%-20% 25V 0.047	
C2022	ECUV1E473ZFN	C CHIP +80%-20% 25V 0.047	
C2023	ECUV1C104KBV	C CHIP 16V 0.1	
C2024	VCUSQAC105KB	C CHIP 16V 1	
C2025	ECUV1E103KBN	C CHIP 25V 0.01	
C2030	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2031	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2032	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C2040	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3001	VCUSQAA335KB	C CHIP 10V 3.3	
C3002	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3003	ECST0JX226	TANTALUM CHIP 6.3V 22	
C3005	ECUV1H220JCV	C CHIP +-5% 50V 22P	
C3006	ECUV1H332KBV	C CHIP 50V 3300P	
C3007	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C3008	ECUE1H103KBV	C CHIP 50V 0.01	
C3009	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C3010	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3011	ECUV1H221JCV	C CHIP +-5% 50V 220P	
C3012	ECUV1H821KBV	C CHIP 50V 820P	
C3013	ECUV1H560JCV	C CHIP +-5% 50V 56P	
C3014	ECUV1H331JCV	C CHIP +-5% 50V 330P	
C3015	ECUV1H561JCV	C CHIP +-5% 50V 560P	
C3017	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C3018	MCUV1E104KBN	C CHIP 25V 0.1	
C3019	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3021	ECST0JX226	TANTALUM CHIP 6.3V 22	
C3023	ECUV1E473KBN	C CHIP 25V 0.047	
C3024	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C3025	ECUE1H103KBV	C CHIP 50V 0.01	
C3028	ECUE1H103KBV	C CHIP 50V 0.01	
C3029	ECUE1H103KBV	C CHIP 50V 0.01	
C3030	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3031	ECUV1C224KBN	C CHIP 16V 0.22	
C3032	ECUV1H332KBV	C CHIP 50V 3300P	
C3033	ECST1CY225	TANTALUM CHIP 16V 2.2	
C3034	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C3036	ECST1AY475N	TANTALUM CHIP 10V 4.7	
C3038	ECUV1H560JCV	C CHIP +-5% 50V 56P	
C3039	ECUV1H180JCV	C CHIP +-5% 50V 18P	
C3040	ECUV1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3042	ECST0JX226	TANTALUM CHIP 6.3V 22	
C3043	ECST0JX226	TANTALUM CHIP 6.3V 22	
C3045	ECST0JY335	TANTALUM CHIP 6.3V 3.3	
C3046	ECEV0GA221S	ELECTROLYTIC CHIP 4V 220	
C3047	VCUSQBA105KB	C CHIP 10V 1	
	(A,B,C,E,F)		
	ECUV1A105KBN	C CHIP 10V 1	
	(D)		
C3048	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3053	ECUV1H390JCV	C CHIP +-5% 50V 39P	
C3054	ECUV1H101JCV	C CHIP +-5% 50V 100P	
C3055	ECUV1H181JCV	C CHIP +-5% 50V 180P	
C3057	ECUV1H180JCV	C CHIP +-5% 50V 18P	
C3058	ECUV1H120JCV	C CHIP +-5% 50V 12P	
C3059	ECUV1H100DCV	C CHIP +-0.5P 50V 10P	
C3060	ECUV1H120JCV	C CHIP +-5% 50V 12P	
C3061	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3068	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3070	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C3072	ECUE1H103KBV	C CHIP 50V 0.01	
C3073	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C3074	ECST0JX226	TANTALUM CHIP 6.3V 22	
C3075	ECUE1H103KBV	C CHIP 50V 0.01	
C3077	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3078	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3079	ECUV1H102KBV	C CHIP 50V 1000P	
C3080	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3081	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3085	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3098	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3107	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3132	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C3135	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3139	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3150	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C3152	ECUV1H681KBV	C CHIP 50V 680P	
	(A,C,D,E,F)		
C3153	ECUV1H681KBV	C CHIP 50V 680P	
	(A,C,D,E,F)		
C4002	ECST0JX226	TANTALUM CHIP 6.3V 22	
C4004	ECST0JY106	TANTALUM CHIP 6.3V 10	
C4005	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C4006	ECST0JX226	TANTALUM CHIP 6.3V 22	
C4007	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C4008	ECUV1E273KBN	C CHIP 25V 0.027	
C4009	ECUV1H822KBV	C CHIP 50V 8200P	
C4010	ECUV1H221KBV	C CHIP 50V 220P	
C4011	ECST1CY105	TANTALUM CHIP 16V 1	
C4012	ECUV1H152KBV	C CHIP 50V 1500P	
C4013	ECUV1H222KBV	C CHIP 50V 2200P	
C4015	VCUSQBA105KB	C CHIP 10V 1	
C4016	ECEV1HA3R3S	ELECTROLYTIC CHIP 50V 3.3	
C4017	ECST0JX226	TANTALUM CHIP 6.3V 22	
C4018	ECUV1H103KBN	C CHIP 50V 0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C4019	ECST1AY475N	TANTALUM CHIP 10V 4.7	
C4020	ECUV1H470JCV	C CHIP +-5% 50V 47P	
C4021	ECUV1H102KBV	C CHIP 50V 1000P	
C4022	ECUT2A472JCW	C CHIP +-5% 100V 4700P	
C4023	ECUV1H682KBN	C CHIP 50V 6800P	
C4024	ECUV1E223KBV	C CHIP 25V 0.022	
C4025	VCUSQBA105KB	CCHIP 10V 1	
C4026	ECST0JX226	TANTALUM CHIP 6.3V 22	
C4027	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C4041	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C6001	ECUV1H330JCV	C CHIP +-5% 50V 33P	
C6002	ECUV1C224KBN	C CHIP 16V 0.22	
C6004	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C6006	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C6007	ECUV1H120JCV	C CHIP +-5% 50V 12P	
C6008	ECUV1H100DCV	C CHIP +-0.5P 50V 10P	
C6009	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C6011	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C6013	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6014	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C6017	ECUV1E104KBN	C CHIP 25V 0.1	
C6018	ECUV1A105KBN	C CHIP 10V 1	
C6020	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C6022	ECUE1H103ZFV	C CHIP +80%-20% 50V 0.01	
C6023	ECUV1H102KBV	C CHIP 50V 1000P	
C6025	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47	
C6028	ECUV1H0R5CCV	C CHIP +-0.25P 50V 0.5P	
C6029	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C6031	ECUE1H103KBV	C CHIP 50V 0.01	
C6032	ECUE1H103KBV	C CHIP 50V 0.01	
C6044	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	
C6201	ECUV1C104KBV	C CHIP 16V 0.1	
C6202	ECUV1C104KBV	C CHIP 16V 0.1	
C6207	ECUE1H121JCV	C CHIP +-5% 50V 120P	
C6208	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C6214	ECUV1H102KBV	C CHIP 50V 1000P	
C6220	TCUV1C155ZFM	C CHIP +80%-20%16V 1.5	
C6221	ECUV1H392KBV	C CHIP 50V 3900P	
C6222	VCUSQAC105KB	C CHIP 16V 1	
C6223	ECST0JX226	TANTALUM CHIP 6.3V 22	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL3001	VLFW0041		

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L302	VLQ0426J470	CHIP +-5% 47	
L303	VLQ0426J330	CHIP +-5% 33	
L304	ELJFA150KF2	15	
L305	VLQ0426J3R9	CHIP 3.9	
L307	ELJFA101KF2	CHIP 100	
L308	VLQ0319K100	CHIP 10	
L311	VLQ0163K1R0	CHIP 1	
L601	VLQ0163K470	CHIP 47	
L602	VLQ0426J150	CHIP +-5% 15	
L605	VLQ0163K150	CHIP 15	
L1001	NP05DA100M	+-20% 10	
L1002	NP05DA100M	+-20% 10	
L1003	NP05DA330M	+-20% 33	
L1004	NP05DA330M	+-20% 33	
L1005	N05DA100K	10	
L1006	VLQ0319K100	CHIP 10	
L1007	VLJW3TC100KT	CHIP 10	
L1008	N05DA100K	10	
L1009	VLQ0426J470	CHIP +-5% 47	
L1010	VLQ0426J470	CHIP +-5% 47	
L1011	VLQ0426J470	CHIP +-5% 47	
L1012	VLQ0319K100	CHIP 10	
L1013	VLQ0319K101	CHIP 100	
L1014	LSLJCMA4R7MF	CHIP +-20% 4.7	
L1015	LSLJDJA100KF	CHIP 10	
L3001	VLJW3TC470KT	CHIP 47	
L3002	VLJW3TC470KT	CHIP 47	
L3003	VLJW3TC470KT	CHIP 47	
L3004	VLJW3TC470KT	CHIP 47	
L3006	VLJW3TC470KT	CHIP 47	
L3009	VLQ0426J820	CHIP +-5% 82	
L3011	VLQ0426J470	CHIP +-5% 47	
L3012	VLQ0426J120	CHIP +-5% 12	
L3013	VLQ0163J331	CHIP +-5% 330	
L3014	VLQ0426J180	CHIP +-5% 18	
L3015	VLQ0163J331	CHIP +-5% 330	
L3016	VLQ0426J470	CHIP +-5% 47	
L3017	VLQ0163J331	CHIP +-5% 330	
L3030	VLJW3TC470KT	CHIP 47	
L4001	VLQ0319K221	CHIP 220	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X3001	VSXW0087		
X301	EFOB1355E5		
X6001	VSXW0093		
X6002	LSSX0030		
X601	VSXW0096		

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
B2	VJPW0262	BOARD TO BOARD 18P	
P2	VJPW0242	CONNECTOR 13P	
	(C,D,E,F)		
P3	VJPW0255	CONNECTOR 12P	
	(A)		
	VJPW0254	CONNECTOR5P	
	(B,C,D,E,F)		

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP1	LSJSRF28DGA	CONNECTOR 28P	
FP11	LSJSQG13DG	CONNECTOR 13P	
FP3	LSJSQG22DG	CONNECTOR 22P	
FP4	VJPW501MP06	CONNECTOR 6P	
FP6	LSJS02AC039	CONNECTOR 39P	
FP7	VJPW501MP14	CONNECTOR 14P	
FP8	VJPW501MP12	CONNECTOR 12P	
FP9	VJPW501MP20	CONNECTOR 20P	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F1001	LSSF008C30T	FUSE CHIP 32V 3A	⚠
	OR VSFW0011	FUSE CHIP 32V 3A	⚠
F1002	LSSF008F15T	FUSE CHIP 63V 1.5A	⚠
	OR VSFW0010	FUSE CHIP 63V 1.5A	⚠
	(C,D,E,F)		

TRANSFORMER

Ref. No.	Part No.	Part Name &Description	Remarks
T1001	VTPW0003A		
T1002	VTPW0004		
T4001	EQQ6QT001T		

12.3.2. CCD C.B.A. ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC601	MN371132FT-M	IC, CCD	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q601	2SC3931	CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R601	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R602	ERJ8GEYJ470V	MGF CHIP 1/8W 47	
R661	ERJ3GEYJ101V	MGF CHIP 1/16W 100	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C603	ECUV1E104ZFV	C CHIP +80%-20% 25V 0.1	
C664	ECUE1C104ZFV	C CHIP +80%-20% 16V 0.1	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E16	VMDW0429	CCD SURFACE PLATE,POLYESTER	

12.3.3. ELECTRONIC VIEWFINDER C.B.A. (B,C,D,E,F) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC901	AN2515NS	IC, LINEAR EVF DRIVE	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q901	2SD968A(S)	CHIP	⚠
Q902	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D901	SFPL-52V	CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R901	ERJ3GEYJ4R7V	MGF CHIP 1/16W 4.7	
R902	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R903	VRJSD3D1302V	MGF CHIP +-0.5% 1/16W 13K	
R904	VRJSD3D1203V	MGF CHIP +-0.5% 1/16W 120K	
R905	ERJ3GEYJ514V	MGF CHIP 1/16W 510K	
R906	ERJ3GEYJ242V	MGF CHIP 1/16W 2.4K	
R907	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R908	VRJSD3D3302	MGF CHIP +-0.5% 1/16W 33K	
R911	ERJ3GEYJ3R9V	MGF CHIP 1/16W 3.9	
R912	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R913	ERJ3GEYJ471V	MGF CHIP 1/16W 470	
R914	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R915	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R916	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R917	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R918	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R919	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R920	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R921	ERJ6GEYJ106V	MGF CHIP 1/10W 10M	
R922	ERJ6GEYJ106V	MGF CHIP 1/10W 10M	
R923	ERJ6GEYJ185V	MGF CHIP 1/10W 1.8M	
R925	ERJ6GEYJ684V	MGF CHIP 1/10W 680K	
R926	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R927	ERJ6GEYJ185V	MGF CHIP 1/10W 1.8M	
R929	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
VR901	EVM7JSX30BE2	VARIABLE CHIP 220	
VR902	VRVW0028	VARIABLE CHIP 5M	
VR903	EVM7ESX30B26	VARIABLE CHIP 2M	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C902	ECUV1H123KBV	C CHIP 50V 0.012	
C903	VCUSQBA105KB	C CHIP 10V 1	
C904	EEAFC0J101H	ELECTROLYTIC 6.3V 100	
C905	VCUSQBA105KB	C CHIP 10V 1	
C906	ECQV1H104JM	POLTESTER +-5% 50V 0.1	
C907	ECUV1C104KBV	C CHIP 16V 0.1	
C908	EEAFC0J101H	ELECTROLYTIC 6.3V 100	
C909	ECUV1H151JCV	C CHIP +-5% 50V 150P	
C910	MCUV2A332JUM	C CHIP +-5% 100V 3300P	⚠
C911	EEAFC0J470H	ELECTROLYTIC 6.3V 47	
C912	EEAFC1C470H	ELECTROLYTIC 16V 47	
C913	ECUV1C104KBV	C CHIP 16V 0.1	
C914	ECUV1C104KBV	C CHIP 16V 0.1	
C915	DE405B151K1K	CERAMIC 1KV 150P	⚠
C916	ECEA1HKS010	ELECTROLYTIC 50V 1	
C917	ECKD2H331KB5	CERAMIC 500V 330P	⚠

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L901	VLQ0319K330	CHIP 33	
L902	VLQ0426J220	CHIP +-5% 22	
L903	ELH5L3105	LINEALITY	⚠

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P902	VJPW0254	CONNECTOR 5P	
P903	VJPW0004N1	CONNECTOR 4P	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP901	VJPW501MP06	CONNECTOR 6P	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T901	ETF08L204A		⚠

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E18	VEKW1639	CRT SOCKET UNIT	
E27	ELY05V583A1	DEFLECTION YOKE	⚠
E33	M01LSX07WB01	CRT	⚠
E34	VMZW0606	INSULATION SHEET,PLASTIC	
E37	LSEK0375	EVF CABLE W/PLUG,DC5V	

12.3.4. COLOR ELECTRONIC VIEWFINDER A C.B.A. (A) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC901	AN2536FHQ	IC, LINEAR EVF DRIVE	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q902	2SC4081T106R	CHIP	
Q903	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q904	IMX1T108	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q905	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D901	MA8033-H	ZENER CHIP 3.3V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R901	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R902	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R903	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R904	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R905	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R906	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R907	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R908	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R909	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R910	ERJ3GEYJ271V	MGF CHIP 1/16W 270	
R911	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R912	ERJ3GEYJ113V	MGF CHIP 1/16W 11K	
R913	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R915	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R916	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R917	ERJ3GEYJ681V	MGF CHIP 1/16W 680	
R918	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R919	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R920	VRJSD3D2702	MGF CHIP +-0.5% 1/16W 27K	
R921	VRJSD3D4701	MGF CHIP +-0.5% 1/16W 4.7K	
R922	VRJSD3D2202	MGF CHIP +-0.5% 1/16W 22K	
R928	VRJSD3D1802	MGF CHIP +-0.5% 1/16W 18K	
R929	VRJSD3D1102	MGF CHIP +-0.5% 1/16W 11K	
R930	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R931	ERJ3GEYJ392V	MGF CHIP 1/16W 3.9K	
R935	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R936	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R938	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R939	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R942	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C905	ECEV1EA4R7S	ELECTROLYTIC CHIP 25V 4.7	
C908	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C910	ECUV1H152KBV	C CHIP 50V 1500P	
C911	ECUV1A105ZFV	C CHIP +80%-20% 10V 1	
C912	NMA0J226MTR	ELECTROLYTIC CHIP 6.3V 22	
C913	ECUV1C104KBV	C CHIP 16V 0.1	
C914	ECUV1C104KBV	C CHIP 16V 0.1	
C915	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C916	ECUV1H152KBV	C CHIP 50V 1500P	
C917	ECST0JY475	TANTALUM CHIP 6.3V 4.7	
C918	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C919	ECUV1C104KBV	C CHIP 16V 0.1	
C920	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C922	ECEV1CA470S	ELECTROLYTIC CHIP 16V 47	
C923	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C924	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C925	ECUV1C104KBV	C CHIP 16V 0.1	
C926	VCUSQAC225KB	C CHIP 16V 2.2	
C927	ECUV1C104KBN	C CHIP 16V 0.1	
C931	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C933	ECUV1C104KBV	C CHIP 16V 0.1	
C934	VCUSQBC105KB	C CHIP 16V 1	
C935	VCUSQBA105KB	C CHIP 10V 1	
C936	ECUV1H103KBV	C CHIP 50V 0.01	
C937	MCUV1E104KBN	C CHIP 25V 0.1	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L902	VLQ0426J150	CHIP +-5% 15	
L903	VLQ0319K100	CHIP 10	
L905	VLQ0426J150	CHIP +-5% 15	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P901	VJPW0255	CONNECTOR 12P	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP901	VJPW501MP06	CONNECTRO 6P	
FP902	VJPW501MP16	CONNECTOR 16P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E36	VEKW1781	EVF CABLE W/PLUG,DC15V	

12.3.5. COLOR ELECTRONIC VIEWFINDER B C.B.A. (A) ■

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q901	2SK1299STL	F.E.T.	⚠

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C903	VCUSQFA106KB	C CHIP 10V 10	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L901	SLF6028T101M	CHOKE +-20% 100	⚠

LAMP

Ref. No.	Part No.	Part Name & Description	Remarks
PL901	VLLW0010	LCD LAMP	⚠
	OR VLLW0011	LCD LAMP	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T901	ETJ09K30AM		⚠
	OR VLTW0044		⚠

12.3.6. LIQUID CRYSTAL DISPLAY C.B.A. (C,D,F) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1201	BA9746FV-E2	IC, LINEAR POWER CONTROL	
IC9001	AN2545FHQ	IC, LINEAR RGB SIGNAL PROCESS	
IC9002	TA75S558F85L	IC, LINEAR OP.AMP.	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1202	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1203	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1204	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1205	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1206	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1207	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1208	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1209	IMX1T108	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q1210	2SB1073	CHIP	
	OR 2SB1386T100Q	CHIP	
	OR 2SB1386T100R	CHIP	
Q1211	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1212	2SC4081T106R	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
	OR 2SD1819A	CHIP	
Q1213	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1214	2SK1958	F.E.T. CHIP	
Q1215	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1216	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1217	CPH3215-TL	CHIP	
Q1218	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1219	IMX1T108	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q1220	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1221	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1222	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q9004	DTC124EU	CHIP	
	OR UN5212	CHIP	
	(D,F)		
Q9005	UN5114	CHIP	
	(D,F)		
Q9051	2SD1119	CHIP	⚠
	OR 2SD2150T100R	CHIP	⚠
Q9052	2SD1119	CHIP	⚠
	OR 2SD2150T100R	CHIP	⚠

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1201	DAN202UT	CHIP	
	OR MA142WK	CHIP	
D1203	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1204	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1205	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1206	MA8068-M	ZENER CHIP 6.8V	
D9001	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D9002	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D9003	MA111	CHIP	
	OR 1SS355TE-17	CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1203	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R1204	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	
R1205	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1206	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1207	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	
R1208	ERJ3GEYJ824V	MGF CHIP 1/16W 820K	
R1209	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1210	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1211	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1212	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1213	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1214	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1215	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1216	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1217	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R1218	VRJSD3D1002	MGFCHIP +-0.5% 1/16W 10K	
R1219	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R1220	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1221	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R1222	VRJSD3D3302	MGF CHIP +-0.5% 1/16W 33K	
R1223	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1224	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R1225	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1226	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1227	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1228	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1229	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1230	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R1231	VRJSD3D2702	MGF CHIP +-0.5% 1/16W 27K	
R1232	VRJSD3D3001	MGF CHIP +-0.5% 1/16W 3K	
R1233	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1234	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R1235	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1237	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R1238	VRJSD3D3301	MGF CHIP +-0.5% 1/16W 3.3K	
R1239	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R1240	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1241	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1242	VRJSD3D4702	MGF CHIP +-0.5% 1/16W 47K	
R1243	VRJSD3D3302	MGF CHIP +-0.5% 1/16W 33K	
R1244	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1245	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R1246	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1247	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1248	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1249	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R1250	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R9001	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R9003	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R9004	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9005	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9006	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9007	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9008	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9009	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9010	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9011	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9012	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9013	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R9014	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R9015	ERJ3GEYJ123V	MGF CHIP 1/16W 12K	
R9016	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9017	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9018	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9019	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9020	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9021	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9022	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9023	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9024	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R9025	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R9026	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9027	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9028	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R9029	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9030	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9031	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9032	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R9033	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
	(D,F)		
R9051	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R9052	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
	(C)		
VR9001	VRVW0024	VARIABLE 10K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1201	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1202	ECUV1C104KBV	C CHIP 16V 0.1	
C1203	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C1204	ECUV1A105KBN	C CHIP 10V 1	
C1205	ECUV1C104KBN	C CHIP 16V 0.1	
C1206	ECUV1H102KBV	C CHIP 50V 1000P	
C1207	ECST0JY106	TANTALUM CHIP 6.3V 10	
C1208	ECUV1H102KBV	C CHIP 50V 1000P	
C1209	ECUV1C224KBN	C CHIP 16V 0.22	
C1210	ECUV1A105KBN	C CHIP 10V 1	
C1211	ECUV0J225KBN	C CHIP 6.3V 2.2	
C1212	VCUSJEA224KB	C CHIP 10V 0.22	
C1213	ECUV1A105ZFV	C CHIP +80%-20% 10V 1	
C1214	ECUV1H101JCV	C CHIP +-5% 50V 100P	
C1216	ECUV1H472KBV	C CHIP 50V 4700P	
C1217	ECUE1H121JCV	C CHIP +-5% 50V 120P	
C1218	VCUSQAC225KB	C CHIP 16V 2.2	
C1219	VCUSQAC105KB	C CHIP 16V 1	
C1220	VCUSQBC105KB	C CHIP 16V 1	
C1221	ECUV1A105KBN	C CHIP 10V 1	
C1223	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1224	ECUV1E105KBM	C CHIP 25V 1	
C1225	VCUSQAE105ZF	C CHIP +80%-20% 25V 1	
C1226	ECUV1C104KBN	C CHIP 16V 0.1	
C1227	ECUV1C104KBN	C CHIP 16V 0.1	
C1228	ECUV1E103KBV	C CHIP 25V 0.01	
C9003	ECST0JY475	TANTALUM CHIP 6.3V 4.7	
C9005	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9007	ECUV1A105ZFV	C CHIP +80%-20% 10V 1	
C9008	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9009	NMA0J226MTR	ELECTROLYTIC CHIP 6.3V 22	
C9010	ECUV1H681KBV	C CHIP 50V 680P	
C9011	ECUV1C104KBV	C CHIP 16V 0.1	
C9012	ECUV1C104KBV	C CHIP 16V 0.1	
C9013	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9014	ECUV1H152KBV	C CHIP 50V 1500P	
C9015	ECST0JY475	TANTALUM CHIP 6.3V 4.7	
C9016	NMA0J226MTR	ELECTROLYTIC CHIP 6.3V 22	
C9017	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9018	ECUV1C104KBV	C CHIP 16V 0.1	
C9019	ECST1CX106	TANTALUM CHIP 16V 10	
C9020	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9021	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9022	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9023	ECST1DX106R	TANTALUM CHIP 20V 10	
C9024	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9025	ECUV1H151JCV	C CHIP +-5% 50V 150P	
C9026	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9027	ECUV1C104KBV	C CHIP 16V 0.1	
C9028	VCUSQBC105KB	C CHIP 16V 1	
C9029	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9030	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9031	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9032	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9051	EEFCD0J220R	TANTALUM CHIP 6.3V 22	
C9052	ECHU1H183JB5	C CHIP +-5% 50V 0.018	
C9053	LSCUCAD150J	C CHIP +-5% 2KV 15P	
C9054	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9055	LSCUCAD150J	C CHIP +-5% 2KV 15P	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1201	VLQ0319K100	CHIP 10	
L1202	NP05DB100M	+-20% 10	
L1203	VLJW3TC100KT	CHIP 10	
L1204	VLQ0426J470	CHIP +-5% 47	
L1205	VLQ0426J470	CHIP +-5% 47	
L1206	VLQ0426J470	CHIP +-5% 47	
L1207	VLQ0426J150	CHIP +-5% 15	
L9001	VLQ0426J150	CHIP +-5% 15	
L9002	VLQ0426J150	CHIP +-5% 15	
L9003	VLQ0163J150	CHIP +-5% 15	
L9004	VLQ0426J150	CHIP +-5% 15	
L9005	VLQ0426J150	CHIP +-5% 15	
L9006	VLQ0426J150	CHIP +-5% 15	
L9007	VLQ0426J150	CHIP +-5% 15	

Ref. No.	Part No.	Part Name & Description	Remarks
L9051	SLF6028T680M	CHOKE +-20% 68	⚠

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP1201	LSJS02AC021	CONNECTOR 21P	
FP9001	LSJSQG24DG	CONNECTOR 24P	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T1202	LSTP0094		
T9051	ETJ11K95AM		⚠

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E44	VMZW0668	INSULATION SHEET,PLASTIC	

12.3.7. LIQUID CRYSTAL DISPLAY C.B.A. (E) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1201	BA9746FV-E2	IC, LINEAR POWER CONTROL	
IC9001	AN2545FHQ	IC, LINEAR RGB SIGNAL PROCESS	
IC9002	TA75S558F85L	IC, LINEAR OP.AMP.	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1202	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1203	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1204	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1205	DTA124EU	CHIP	
	OR UN5112	CHIP	
Q1206	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1207	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1208	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1209	IMX1T108	COMPLX CMP SI NPNCHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q1210	2SB1073	CHIP	
	OR 2SB1386T100Q	CHIP	
	OR 2SB1386T100R	CHIP	
Q1211	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1212	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1213	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1214	2SK1958	F.E.T. CHIP	
Q1215	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1216	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q1217	CPH3215-TL	CHIP	
Q1218	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1219	IMX1T108	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q1220	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q1221	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q1222	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q9001	DTC124EU	CHIP	
	OR UN5212	CHIP	
Q9002	UN5114	CHIP	
Q9101	2SD1119	CHIP	⚠
	OR 2SD2150T100R	CHIP	⚠
Q9102	2SD1119	CHIP	⚠
	OR 2SD2150T100R	CHIP	⚠

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1201	DAN202UT	CHIP	
	OR MA142WK	CHIP	
D1203	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1204	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1205	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1206	MA8068-M	ZENER CHIP 6.8V	
D9001	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D9002	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D9003	MA111	CHIP	
	OR 1SS355TE-17	CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1203	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R1204	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	
R1205	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1206	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1207	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	
R1208	ERJ3GEYJ824V	MGF CHIP 1/16W 820K	
R1209	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1210	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1211	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1212	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1213	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1214	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1215	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1216	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1217	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R1218	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R1219	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R1220	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1221	VRJSD3D1002	MGF CHIP +-0.5% 1/16W 10K	
R1222	VRJSD3D3302	MGF CHIP +-0.5% 1/16W 33K	
R1223	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1224	ERJ3GEYJ391V	MGF CHIP 1/16W 390	
R1225	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1226	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1227	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1228	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1229	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1230	ERJ3GEYJ105V	MGF CHIP 1/16W 1M	
R1231	VRJSD3D2702	MGF CHIP +-0.5% 1/16W 27K	
R1232	VRJSD3D3001	MGF CHIP +-0.5% 1/16W 3K	
R1233	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1234	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R1235	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1237	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R1238	VRJSD3D3301	MGF CHIP +-0.5% 1/16W 3.3K	
R1239	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R1240	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1241	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1242	VRJSD3D4702	MGF CHIP +-0.5% 1/16W 47K	
R1243	VRJSD3D3302	MGF CHIP +-0.5% 1/16W 33K	
R1244	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R1245	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R1246	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1247	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1248	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R1249	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R1250	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R9001	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R9003	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R9004	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9005	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9006	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9007	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9008	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9009	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9011	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9012	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9013	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R9014	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R9015	ERJ3GEYJ123X	MGF CHIP 1/16W 12K	
R9016	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9017	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9018	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9019	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9020	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9021	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9022	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9023	ERJ3GEYJ303V	MGF CHIP 1/16W 30K	
R9024	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R9025	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R9026	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9027	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9028	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R9029	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R9030	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9031	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R9032	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R9033	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R9053	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R9054	ERJ3GEY0R00V	MGF CHIP 1/16W 0	●
R9101	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R9102	ERJ8GEY0R00V	MGF CHIP 1/8W 0	●
VR9001	VRVW0024	VARIABLE 10K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1201	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1202	ECUV1C104KBV	C CHIP 16V 0.1	
C1203	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C1204	ECUV1A105KBN	C CHIP 10V 1	
C1205	ECUV1C104KBN	C CHIP 16V 0.1	
C1206	ECUV1H102KBV	C CHIP 50V 1000P	
C1207	ECST0JY106	TANTALUM CHIP 6.3V 10	
C1208	ECUV1H102KBV	C CHIP 50V 1000P	
C1209	ECUV1C224KBN	C CHIP 16V 0.22	
C1210	ECUV1A105KBN	C CHIP 10V 1	
C1211	ECUV0J225KBN	C CHIP 6.3V 2.2	
C1212	VCUSJEA224KB	C CHIP 10V 0.22	
C1213	ECUV1A105ZFV	C CHIP +80%-20% 10V 1	
C1214	ECUV1H101JCV	C CHIP +-5% 50V 100P	
C1216	ECUV1H472KBV	C CHIP 50V 4700P	
C1217	ECUE1H121JCV	C CHIP +-5% 50V 120P	
C1218	VCUSQAC225KB	C CHIP 16V 2.2	
C1219	VCUSQAC105KB	C CHIP 16V 1	
C1220	VCUSQBC105KB	C CHIP 16V 1	
C1221	ECUV1A105KBN	C CHIP 10V 1	
C1223	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C1224	ECUV1E105KBM	C CHIP 25V 1	
C1225	VCUSQAE105ZF	C CHIP +80%-20% 25V 1	
C1226	ECUV1C104KBN	C CHIP 16V 0.1	
C1227	ECUV1C104KBN	C CHIP 16V 0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C1228	ECUV1E103KBV	C CHIP 25V 0.01	
C9003	ECST0JX226	TANTALUM CHIP 6.3V 22	
C9005	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9007	ECUV1A105ZFV	C CHIP +80%-20% 10V 1	
C9008	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9009	NMA0J226MTR	ELECTROLYTIC CHIP 6.3V 22	
C9010	ECUV1H681KBV	C CHIP 50V 680P	
C9011	ECUV1C104KBV	C CHIP 16V 0.1	
C9012	ECUV1C104KBV	C CHIP 16V 0.1	
C9013	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9014	ECUV1H152KBV	C CHIP 50V 1500P	
C9015	ECST0JY475	TANTALUM CHIP 6.3V 4.7	
C9016	NMA0J226MTR	ELECTROLYTIC CHIP 6.3V 22	
C9017	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9018	ECUV1C104KBV	C CHIP 16V 0.1	
C9019	ECST1CX106	TANTALUM CHIP 16V 10	
C9020	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9021	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9022	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9023	ECST1DX106R	TANTALUM CHIP 20V 10	
C9024	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9025	ECUV1H151JCV	C CHIP +-5% 50V 150P	
C9026	VCUSJBJ225KB	C CHIP 6.3V 2.2	
C9027	ECUV1C104KBV	C CHIP 16V 0.1	
C9028	VCUSQBC105KB	C CHIP 16V 1	
C9029	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9030	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9031	ECST0JY106	TANTALUM CHIP 6.3V 10	
C9032	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9044	ECUV1C104ZFV	C CHIP +80%-20% 16V 0.1	
C9101	EEFCD0J220R	TANTALUM CHIP 6.3V 22	
C9102	ECHU1H393JB5	C CHIP +-5% 50V 0.039	
C9103	VCCW0008	CCHIP	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1201	VLQ0319K100	CHIP 10	
L1202	NP05DB100M	+-20% 10	
L1203	VLJW3TC100KT	CHIP 10	
L1204	VLQ0426J470	CHIP +-5% 47	
L1205	VLQ0426J470	CHIP +-5% 47	
L1206	VLQ0426J470	CHIP +-5% 47	
L1207	VLQ0426J150	CHIP +-5% 15	
L9001	VLQ0426J150	CHIP +-5% 15	
L9002	VLQ0464K150	CHIP 15	
L9003	VLQ0163J150	CHIP +-5% 15	
L9004	VLQ0464K150	CHIP 15	
L9005	VLQ0426J150	CHIP +-5% 15	
L9006	VLQ0464K150	CHIP 15	
L9007	VLQ0426J150	CHIP +-5% 15	
L9101	SLF6028T680M	CHOKE +-20% 68	⚠

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP1201	LSJS02AC021	CONNECTOR 21P	
FP9001	LSJSQG24DG	CONNECTOR 24P	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T1202	LSTP0094		
T9101	LSLT0030		⚠

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E44	VMZW0650	INSULATION SHEET,PLASTIC	

12.3.8. RELAY C.B.A. (C,D,E,F) ■

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P9001	VJPW0242	CONNECTOR 13P	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP9002	LSJSQG18DG	CONNECTOR 18P	

12.3.9. ELECTRICAL PARTS LOCATED ON CHASSIS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3365SB-E1	IC, LINEAR HEAD AMP	
E6	LSEQ0540	MECHANISM FLEXIBLE PRINTED CIRCUIT UNIT	
E22	VJBW1626F	CYLINDER CABLE W/OUT PLUG,DC5V	
E41	VULS0001	LAMP KIT	⚠
	(A,C,D,E)		
E64	VEKW1782	LCD CABLE W/PLUG,DC5V	
	(C,D,E,F)		

12.3.10. SUMMARY OF "E" ITEM NUMBERS

REFER TO ELECTRICAL PARTS LIST FOR MODEL INFORMATION

Ref. No.	Part No.	Part Name & Description	Remarks
E1	LSEP8024E1	MAIN C.B.A.	RTL
E1	LSEP8024D1	MAIN C.B.A.	RTL
E1	LSEP8024A1	MAIN C.B.A.	RTL
E1	LSEP8024F1	MAIN C.B.A.	RTL
E1	LSEP8024C1	MAIN C.B.A.	RTL
E1	LSEP8024B1	MAIN C.B.A.	RTL
E2	LSEQ0547	CCD C.B.A.	RTL
E3	LSEQ0558	ELECTRONIC VIEWFINDER C.B.A.	RTL
E4	LSEP8035A1	COLOR ELECTRONIC VIEWFINDER A C.B.A.	RTL
E5	VEPW1671A1	COLOR ELECTRONIC VIEWFINDER B C.B.A.	RTL
E6	LSEQ0540	MECHANISM FLEXIBLE PRINTED CIRCUIT UNIT	
E16	VMDW0429	CCD SURFACE PLATE,POLYESTER	
E18	VEKW1639	CRT SOCKET UNIT	
E22	VJBW1626F	CYLINDER CABLE W/OUT PLUG,DC5V	
E27	ELY05V583A1	DEFLECTION YOKE	⚠
E33	M01LSX07WB01	CRT	⚠
E34	VMZW0606	INSULATION SHEET,PLASTIC	
E36	VEKW1781	EVF CABLE W/PLUG,DC15V	
E37	LSEK0375	EVF CABLE W/PLUG,DC5V	
E41	VULS0001	LAMP KIT	⚠
E44	VMZW0668	INSULATION SHEET,PLASTIC	
E44	VMZW0650	INSULATION SHEET,PLASTIC	
E52	LSEP8030A1	LIQUID CRYSTAL DISPLAY C.B.A.	RTL
E52	LSEP8030B1	LIQUID CRYSTAL DISPLAY C.B.A.	RTL
E52	LSEP8031A1	LIQUID CRYSTAL DISPLAY C.B.A.	RTL
E53	LSEP8033A1	RELAY C.B.A.	
E64	VEKW1782	LCD CABLE W/PLUG,DC5V	

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Note: AC Adaptor used with these Camcorder is PV-A17.
The Service Manual for AC Adaptor (PV-A17) is a separate volume.
Please refer to following manual for PV-A17.
Order number for AC Adaptor (PV-A17): MKW9512M302.

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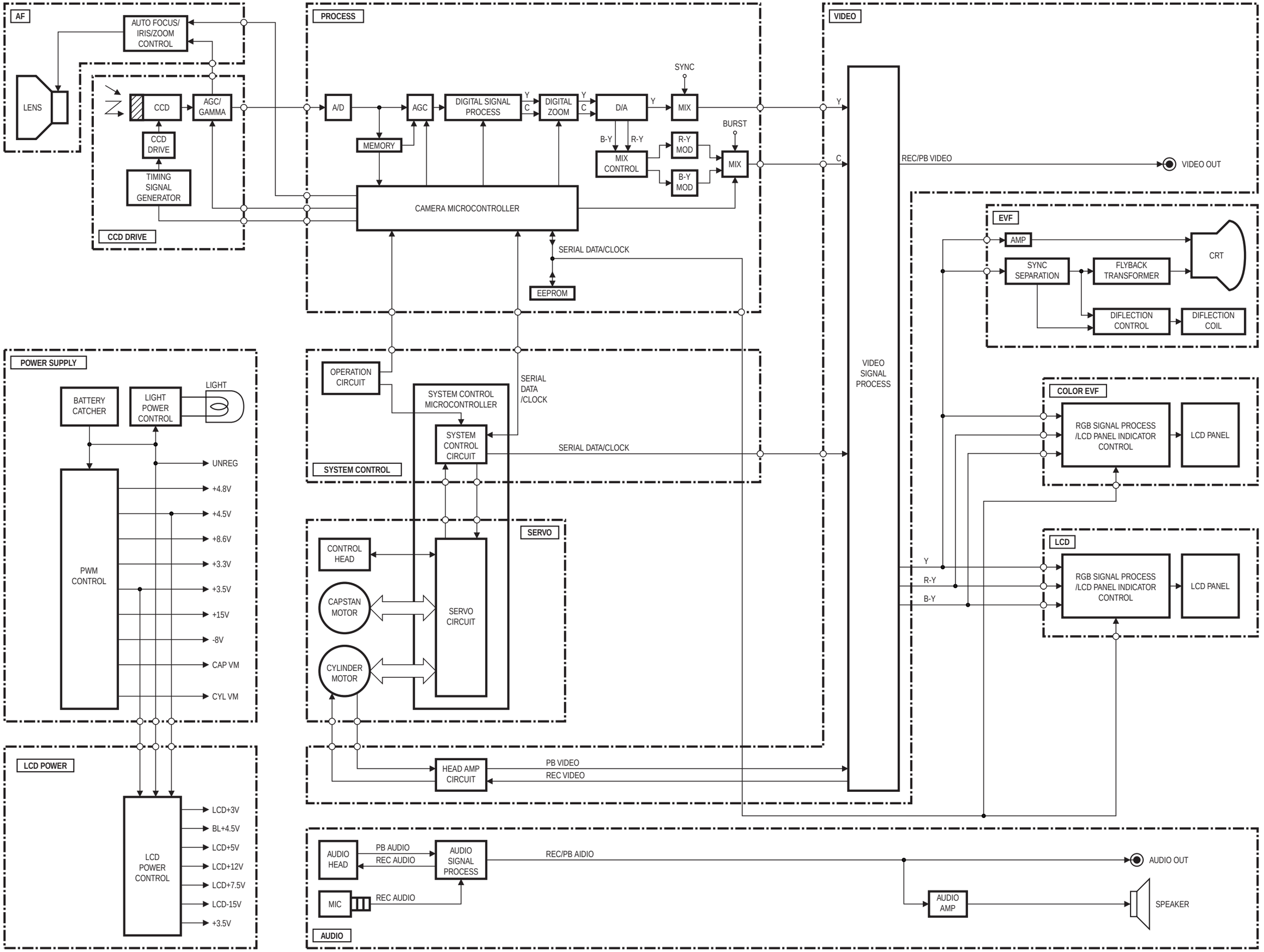

AF
AUTO FOCUS/ IRIS/ZOOM CONTROL
LENS
CCD
AGC/ GAMMA
CCD DRIVE
TIMING SIGNAL GENERATOR
CCD DRIVE
PROCESS
A/D
AGC
DIGITAL SIGNAL PROCESS
DIGITAL ZOOM
D/A
MIX
SYNC
BURST
MEMORY
B-Y
R-Y
MIX CONTROL
R-Y MOD
B-Y MOD
MIX
CAMERA MICROCONTROLLER
SERIAL DATA/CLOCK
EEPROM
VIDEO
Y
C
VIDEO SIGNAL PROCESS
REC/PB VIDEO
VIDEO OUT
EVF
AMP
SYNC SEPARATION
FLYBACK TRANSFORMER
CRT
DIFLECTION CONTROL
DIFLECTION COIL
COLOR EVF
RGB SIGNAL PROCESS /LCD PANEL INDICATOR CONTROL
LCD PANEL
LCD
RGB SIGNAL PROCESS /LCD PANEL INDICATOR CONTROL
LCD PANEL
POWER SUPPLY
BATTERY CATCHER
LIGHT POWER CONTROL
LIGHT
PWM CONTROL
UNREG
+4.8V
+4.5V
+8.6V
+3.3V
+3.5V
+15V
-8V
CAP VM
CYL VM
OPERATION CIRCUIT
SYSTEM CONTROL MICROCONTROLLER
SERIAL DATA /CLOCK
SYSTEM CONTROL CIRCUIT
SERIAL DATA/CLOCK
SYSTEM CONTROL
SERVO
CONTROL HEAD
CAPSTAN MOTOR
CYLINDER MOTOR
SERVO CIRCUIT
HEAD AMP CIRCUIT
PB VIDEO
REC VIDEO
LCD POWER
LCD POWER CONTROL
LCD+3V
BL+4.5V
LCD+5V
LCD+12V
LCD+7.5V
LCD-15V
+3.5V
AUDIO HEAD
PB AUDIO
REC AUDIO
AUDIO SIGNAL PROCESS
REC/PB AIDIO
AUDIO OUT
MIC
REC AUDIO
AUDIO AMP
SPEAKER
AUDIO

RELAY C.B.A.

LCD SHAFT UNIT

LCD C.B.A.

FROM POWER SUPPLY BLOCK DIAGRAM

REG+3.5V — P2 5 — P9001 5 — P9002 1, 2 — FP1201 3,4 — L1201 — REG+3.5V

ON: OPEN
OFF: CLOSE
LCD OPEN/CLOSE SW

FP1201 1 — D1201 — Q1202 — Q1203 — Q1204 — Q1205 — Q1206 — Q1207

FP1201 2

LCD NORMAL/ REVERSE SW
ON: REVERSE
OFF: NORMAL

Q1208 — LCD+3.V

Q1209 — ERROR AMP

Q1218 — LCD+12V

Q1219 — ERROR AMP

Q1221 — LCD+7.5V

D1206

Q1222

(TO IC6001 (79)) LCD MODE — P2 11 — P9001 11 — P9002 14 — FP1201 16

UNREG — P2 12 — P9001 12 — FP9002 15, 16 — FP1201 17, 18 — L1203

T1202

D1204

D1205

D1203

Q1220 — LCD+5V

LCD-15V

IC1201 (PWM CONTROL)

Q1216

OSC

PWM COMPARATOR

ERROR AMP

DRIVE

Q1217

L1207

VCC

SHORT CIRCUIT PROTECT

FROM POWER SUPPLY BLOCK DIAGRAM

BL +4.5V — P2 13 — P9001 13 — FP9002 17, 18 — FP1201 19,20,21 — L1202 — BL+4.5V

Q1210

Q1211

Q1212

Q1213

Q1214 LATCH — Q1215

LCD C.B.A.

VIDEO SIGNAL

IC9003 (SYNC SEPARATOR)

NOT USED

Q9003 BUFFER

V/H SYNC SEPARATION

V-SYNC SEPARATION

H. COUNT DOWN

AFC

H. VCO

X9001 32kHz OSC

IC9004 (INVERTER)

IC9001(RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL)

V COUNTER

V-SYNC SEPARATION

V/H SYNC SEPA

PLL COUNTER

H COUNTER

LCD DRIVE OUTPUT

OEH
STH2
STH1
CPH3
CPH2
CPH1
OEV
STV2
STV1
CPV
QH

LCD +5V

LCD +3V

LCD -15V

LCD +12V

LCD PANEL UNIT

FP9001 11 FP9001 17 FP9001 23 FP9001 16 FP9001 2 FP9001 13 FP9001 1 FP9001 6 FP9001 5 FP9001 4 FP9001 19 FP9001 18 FP9001 22 FP9001 20 FP9001 3 FP9001 10 FP9001 9 FP9001 8

REG +3.5V

VR9001 BRIGHTNESS

RELAY C.B.A.

LCD SHAFT UNIT

FROM VIDEO BLOCK DIAGRAM

LUMINANCE	P2 8	P9001 8	FP9002 11	FP1201 13	CLAMP	GCA	R
R-Y	P2 9	P9001 9	FP9002 12	FP1201 14	DL	GCA	G
B-Y	P2 10	P9001 10	FP9002 13	FP1201 15	DL	GCA	B

MATRIX → RGB SW → CONTRAST → CLAMP → OSD SW → GAMMA → LIMIT → INV → DRIVE

TP9002 TP9001 TP9003

TO/FORM PROCESS BLOCK DIAGRAM

BRIGHTNESS CONTROL	P2 4	P9001 4	FP9002 6	FP1201 8	R9004 D9001
LCD LOAD	P2 3	P9001 3	FP9002 5	FP1201 7	R9005 D9002
SERIAL CLOCK	P2 1	P9001 1	FP9002 3	FP1201 5	R9006 D9003
SERIAL DATA 0	P2 2	P9001 2	FP9002 4	FP1201 6	

LCD +3V

SERIAL D/A CONVERTER

LCD +7.5V → VCC (+7.5V)

LCD +3V → VCC (+3V) ×3

REVERSE(L/R) CONTROL

REVERSE(UP/DOWN) CONTROL

V-COM DC CONTROL

V-COM AC CONTROL

IC9002 OP AMP

FP9001 15 V-COM

FP9001 24 FP9001 12 FP9001 21

LCD +5V

LCD -15V

X DRIVE

Y DRIVE

1 2 3 ---------- 478479480

1 R G B R G B
2 B R G B R G
3 R G B R G B
233 R G B R G B
234 B R G B R G

Q9005 Q9004 (WITH 2.5 OR 3 INCH LCD)

Q9002 Q9001 (WITH 4 INCH LCD)

(WITH 2.5 OR 3 INCH LCD)

Q9051 Q9052 T9051 L9051 PL9001 BACKLIGHT C9053/C9055

(WITH 4 INCH LCD)

BL +4.5V

Q9102 Q9101 T9101 L9101 PL9101 BACKLIGHT C9103

EVF C.B.A.

VIDEO SIGNAL

FROM VIDEO BLOCK DIAGRAM

LUMINANCE

P3 1 — P902 1

IC901 (EVF DRIVE)

11 AMP

SYNC SEPARATION

VERTICAL SYNC SEPARATOR

VERTICAL OSC

MIX AMP

13

6

HORIZONTAL AFC

HORIZONTAL OSC

VERTICAL DRIVE

VCC 12

VCC 2

9 8 15 14 16 5 1 3

TP901 TP902

VR901 V.SIZE

L901

L903

P903 1

P903 2

VR903 BRIGHTNESS

Q902 AMP

G1

T901

1 2 3 4 5 — HV 6 7

H.DEFLECTION COIL

H HV HK

V.DEFLECTION COIL

C915

C917

G2 G3

VR902 FOCUS

P903 4

P903 3

Q901 H PLUSE DRIVE

EVF +4.5V

VIDEO SIGNAL

COLOR EVF A C.B.A.

EVF LCD PANEL UNIT

+15V
Q905
L905
Q904
+4.5V
Q903
L902
D901
Q902

IC901 (EVF RGB SIGNAL PROCESS)

18 VCC
25 VCC
43 VCC
44 VCC
47

V/H SYNC SEPARATION
PLL COUNTER
H COUNTER
V SYNC SEPARATION
V COUNTER

LCD DRIVE OUTPUT

HST 20
HCK2 22
HCK1 24
BL CONTROL 36
VST 29
EN 34
VCK1 31

FP902 1 VDD
FP902 8
FP902 9
FP902 10
FP902 11
FP902 14
FP902 15
FP902 13
FP902 3
FP902 6
FP902 4
FP902 7
FP902 12

LEVEL COVERTER
LEVEL COVERTER

H SHIFT REGISTER
V SHIFT REGISTER
UP/DOWN BLANK CONTROL

VIDEO R
VIDEO G
VIDEO B
VIDEO SIGNAL LINE

SAMPLE HOLDER
PIXEL MATRIX

FROM VIDEO BLOCK DIAGRAM
R-Y
LUMINANCE
B-Y

FP3 6 FP901 6
FP3 1 FP901 1
FP3 7 FP901 7

2 CLAMP
48 CLAMP
1 CLAMP

DL DL
GCA
DL
GCA
DL
GCA

MATRIX
RGB SW
CONTRAST
CLAMP
BRIGHT-NESS
OSD SW
GAMMA
LIMIT
INV
DRIVE

16 TP901
14 TP902
11 TP903

FROM PROCESS BLOCK DIAGRAM
EVF LOAD
SERIAL CLOCK
SERIAL DATA 0

FP3 12 FP901 12
FP3 11 FP901 11
FP3 10 FP901 10

R902
R903
R904

37
38
39

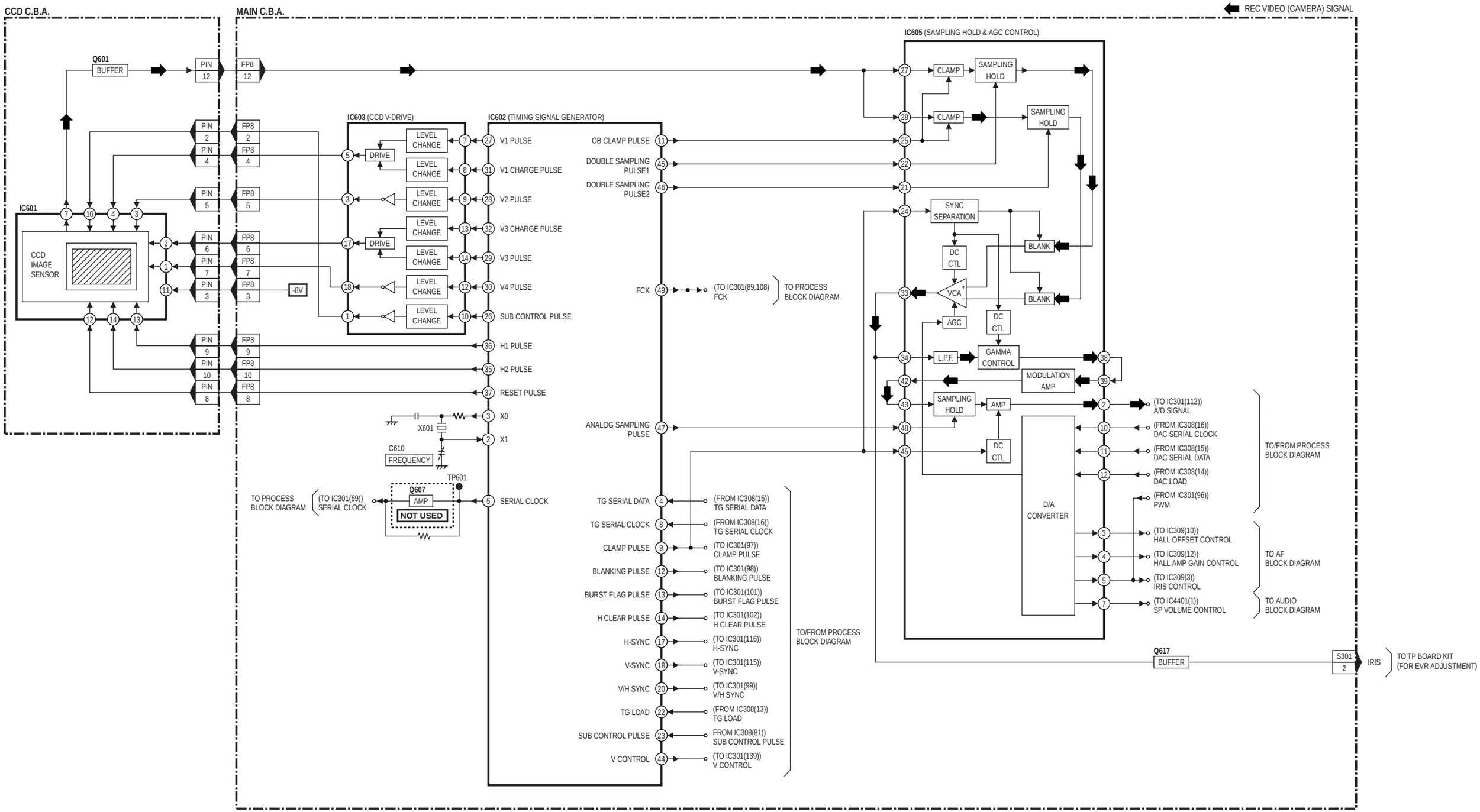
D/A CONVERTER

V-COM CONTROL 8
FP902 16 V-COM

COLOR EVF B C.B.A.

T901
L901
PL901 BACKLIGHT
Q901 (SWITCHING)

+4.5V
B902 2
B902 5
B901 2
B901 5


CCD C.B.A.
MAIN C.B.A.
REC VIDEO (CAMERA) SIGNAL
Q601
BUFFER
IC601
CCD IMAGE SENSOR
IC603 (CCD V-DRIVE)
IC602 (TIMING SIGNAL GENERATOR)
IC605 (SAMPLING HOLD & AGC CONTROL)
LEVEL CHANGE
DRIVE
-8V
V1 PULSE
V1 CHARGE PULSE
V2 PULSE
V3 CHARGE PULSE
V3 PULSE
V4 PULSE
SUB CONTROL PULSE
H1 PULSE
H2 PULSE
RESET PULSE
X0
X1
X601
C610
FREQUENCY
TP601
Q607
AMP
NOT USED
SERIAL CLOCK
TO PROCESS BLOCK DIAGRAM
(TO IC301(69)) SERIAL CLOCK
OB CLAMP PULSE
DOUBLE SAMPLING PULSE1
DOUBLE SAMPLING PULSE2
FCK
(TO IC301(89,108)) FCK
TO PROCESS BLOCK DIAGRAM
ANALOG SAMPLING PULSE
TG SERIAL DATA
TG SERIAL CLOCK
CLAMP PULSE
BLANKING PULSE
BURST FLAG PULSE
H CLEAR PULSE
H-SYNC
V-SYNC
V/H SYNC
TG LOAD
SUB CONTROL PULSE
V CONTROL
(FROM IC308(15)) TG SERIAL DATA
(FROM IC308(16)) TG SERIAL CLOCK
(TO IC301(97)) CLAMP PULSE
(TO IC301(98)) BLANKING PULSE
(TO IC301(101)) BURST FLAG PULSE
(TO IC301(102)) H CLEAR PULSE
(TO IC301(116)) H-SYNC
(TO IC301(115)) V-SYNC
(TO IC301(99)) V/H SYNC
(FROM IC308(13)) TG LOAD
FROM IC308(81)) SUB CONTROL PULSE
(TO IC301(139)) V CONTROL
TO/FROM PROCESS BLOCK DIAGRAM
CLAMP
SAMPLING HOLD
SYNC SEPARATION
BLANK
DC CTL
VCA
AGC
L.P.F.
GAMMA CONTROL
MODULATION AMP
AMP
D/A CONVERTER
(TO IC301(112)) A/D SIGNAL
(FROM IC308(16)) DAC SERIAL CLOCK
(FROM IC308(15)) DAC SERIAL DATA
(FROM IC308(14)) DAC LOAD
(FROM IC301(96)) PWM
(TO IC309(10)) HALL OFFSET CONTROL
(TO IC309(12)) HALL AMP GAIN CONTROL
(TO IC309(3)) IRIS CONTROL
(TO IC4401(1)) SP VOLUME CONTROL
TO/FROM PROCESS BLOCK DIAGRAM
TO AF BLOCK DIAGRAM
TO AUDIO BLOCK DIAGRAM
Q617
BUFFER
S301
IRIS
TO TP BOARD KIT (FOR EVR ADJUSTMENT)

MAIN C.B.A.

REC VIDEO SIGNAL

IC301 (DIGITAL SIGNAL PROCESSOR)

IC308 (CAMERA CONTROL MICROCONTROLLER)

ADDRESS (8 BIT)

DATA (8 BIT)

IC301		IC308
ADDRESS 0	126	5 ADDRESS 0
ADDRESS 1	125	6 ADDRESS 1
ADDRESS 2	124	7 ADDRESS 2
ADDRESS 3	123	8 ADDRESS 3
ADDRESS 4	122	9 ADDRESS 4
ADDRESS 5	119	10 ADDRESS 5
ADDRESS 6	118	1 ADDRESS 6
ADDRESS 7	117	12 ADDRESS 7
DATA 0	136	30 DATA 0
DATA 1	133	31 DATA 1
DATA 2	132	32 DATA 2
DATA 3	131	33 DATA 3
DATA 4	130	35 DATA 4
DATA 5	129	36 DATA 5
DATA 6	128	37 DATA 6
DATA 7	127	38 DATA 7
WRITE ENABLE	103	41 WRITE ENABLE
READ ENABLE	104	42 READ ENABLE
BLOCK END CONTROL	91	78 BLOCK END CONTROL
DIS IRQ	144	77 DIS IRQ

TOP OPERATION UNIT

IC308 KEY MATRIX CHART

TERMINAL VOLTAGE	0~ 0.14V	0.71~ 0.89V	1.56~ 1.84V	2.41~ 2.69V	3.36~ 3.64V
OPERATION BUTTON	EIS	DIGITAL ZOOM	----	HSS	----
	----	----	BACK LIGHT	FADE	----

CAM KEY DATA 2	44	FP3 17	OPERATION BUTTON
CAM KEY DATA 3	45	FP3 19	OPERATION BUTTON
BRIGHTNESS CONTROL	46	(FROM LCD BLOCK DIAGRAM) BRIGHTNESS CONTROL	

TG LOAD	13	(TO IC602(22)) TG LOAD
SUB CONTROL PULSE	81	(TO IC602(23)) SUB CONTROL PULSE
DAC LOAD	14	(TO IC605(12)) DAC LOAD
DAC/TG SERIAL DATA	15	(TO IC605(11)) DAC SERIAL DATA (TO IC602(4)) TG SERIAL DATA
DAC/TG SERIAL CLOCK	16	(TO IC605(10)) DAC SERIALCLOCK (TO IC602(8)) TG SERIAL CLOCK

TO CCD DRIVE BLOCK DIAGRAM

CAM SERIAL DATA 1	48	(FROM IC6001(13)) CAM SERIAL DATA 1
CAM SERIAL DATA 0	55	(TO IC6001(12)) CAM SERIAL DATA 0
CAM SERIAL CLOCK	56	(TO IC6001(11)) CAM SERIAL CLOCK
EVR SERIAL DATA 0	72	(FROM IC6001(44)) CAM RESET (L)

FROM/TO SYSTEM CONTROL BLOCK DIAGRAM

V CONTROL	45	
V CONTROL	139	(FROM IC602(44)) V CONTROL
SERIAL CLOCK	69	(FROM IC602(5)) SERIAL CLOCK
CLAMP PULSE	97	(FROM IC602(9)) CLAMP PULSE
BLANKING PULSE	98	(FROM IC602(12)) BLANKING PULSE
V/H SYNC	99	(FROM IC602(20)) V/H SYNC
BURST FLAG PULSE	101	(FROM IC602(13)) BURST FLAG PULSE
H CLEAR PLUSE	102	(FROM IC602(14)) H CLEAR PLUSE
FCK	89	(FROM IC602(49)) FCK
FCK	108	
		(FROM IC602(17)) H-SYNC
		(FROM IC602(18)) V-SYNC

FROM CCD DRIVE BLOCK DIAGRAM

TO COLOR EVF BLOCK DIAGRAM

EVF LOAD	26	EVF LOAD
SERIAL DATA 0		
SERIAL CLOCK		

(WITH COLOR EVF)

TO LCD BLOCK DIAGRAM

LCD LOAD	40	LCD LOAD
SERIAL DATA 0		
SERIAL CLOCK		

(WITH LCD)

IC305 (EEPROM)

SERIAL CLOCK	7	67 SERIAL CLOCK
SERIAL DATA 0	6	69 SERIAL DATA 0
SERIAL DATA 1	5	68 SERIAL DATA 1
EEPROM CS (L)	8	27 EEPROM CS (L)

NOT USED

IC306 (EEPROM)

SERIAL CLOCK	4
SERIAL DATA 0	5
SERIAL DATA 1	6
EEPROM CS (L)	3

V-SYNC	115	76 V-SYNC
H-SYNC	116	52 H-SYNC
CS 1	54	2 CS 1
CS 2	53	3 CS 2
CS 3	87	4 CS 3
		53 H-SYNC

V-REF (+3.3V)	111	V-REF (H)
V-REF (+1.3V)	110	V-REF (L)
FROM CCD DRIVE BLOCK DIAGRAM A/D SIGNAL	112	A/D SIGNAL

CHROMINANCE	77	Q305,Q307 BUFFER			(TO IC3001(34)) CHROMINANCE
LUMINANCE	78	Q303,Q306 BUFFER	Q302 AMP	Q301 BUFFER	(TO IC3001(1)) LUMINANCE
V/H SYNC	50				

TO VIDEO BLOCK DIAGRAM

CAM RESET (L)	82	S301 10 EVR SERIAL DATA 0
EVR SERIAL DATA 1	71	S301 9 V-SYNC
EVR SERIAL CLOCK	70	S301 11 CAM RESET (L)
EVR MODE	49	S301 8 EVR SERIAL DATA 1
		S301 12 EVR SERIAL CLOCK
		S301 6 EVR MODE
		S301 14 LUMINANCE

FROM/TO TP BOARD KIT (FOR EVR ADJUSTMENT)

MAIN C.B.A.

REC VIDEO SIGNAL PB VIDEO SIGNAL

IC3001 (LUMINANCE/CHROMINANCE SIGNAL PROCESS)

BATTERY CATCHER UNIT

JK1201

VIDEO OUT

TO EVF BLOCK DIAGRAM (WITH EVF)

TO COLOR EVF BLOCK DIAGRAM (WITH COLOR EVF)

TO LCD BLOCK DIAGRAM

LUMINANCE

B-Y

R-Y

Q3029 BUFFER

Q3028 BUFFER

OSD DATA MIX

B-Y DEMODULATOR

R-Y DEMODULATOR

ART V-SYNC MIX

Y/C MIX

(FROM IC6001(24)) V-LOCK PULSE

FROM SERVO BLOCK DIAGRAM

Q3022 BUFFER

BUFFER Q3021

TP3006

Q3027 AMP

TP3005

L3015,L3016, C3059,C3060

BPF

H-SYNC

PB LUMINANCE

REC CHROMINANCE

REC LUMINANCE

ENVELOPE

HEAD SW

TO TP BOARD KIT (FOR EVR ADJUSTMENT)

NOT USED

CYLINDER UNIT (FOR 4 HEAD MODEL)

IC3501 (HEAD AMP)

SP

SLP

PB-ON

REC -ON

AT ENV.

ENV-DET

REC (H)

VIDEO SP (L) HEAD

VIDEO SP (R) HEAD

VIDEO SLP (L) HEAD

VIDEO SLP (R) HEAD

FROM PROCESS BLOCK DIAGRAM

(FROM IC301(77)) CHROMINANCE

(FROM IC301(78)) LUMINANCE

REC/PB CHROMINANCE SIGNAL PROCESS

REC-C

PB-C

REC/PB-Y

REC-Y

PB-Y

REC/PB LUMINANCE SIGNAL PROCESS

CHROMA PHASE COMPENSATOR

Q3004,Q3005

BUFFER Q3003

AGC

OSD(DATE /TIME) DATA MIX

TP3001

FROM SYSTEM CONTROL BLOCK DIAGRAM

(FROM IC6001(98)) ROTARY SW

(FROM IC6001(58)) OSD BLANKING

(FROM IC6001(60)) OSD DATA

(FROM IC6001(59)) OSD BLANKING

(FROM IC6001(61)) OSD(DATE/TIME) DATA

(FROM IC6001(57)) LOAD

(FROM IC6001(16)) SERIAL DATA 0

(FROM IC6001(14)) SERIAL CLOCK

ROTARY SW

OSD DATA

OSD(DATE/TIME) DATA

D/A CONVERTER

EE (H) SLP (H)

TO AUDIO BLOCK DIAGRAM

(TO IC4001(11)) AUDIO EE (H)

(TO IC4001(15)) SLP (H)

(TO Q4011(B)) AUDIO FADE CONTROL

FROM SYSTEM CONTROL BLOCK DIAGRAM

(FROM IC6001(27)) VIDEO DELAY REC (H)

(FROM IC6001(23)) HEAD SW

TO/FROM SERVO BLOCK DIAGRAM

(FROM IC6001(99)) HEAD AMP SW

(TO IC6001(100)) ENVELOPE DET

(TO IC6001(89)) ENV-VOLTAGE

CCD 1H DELAY

IC3002 (TWIN CCD 1H DELAY)

CYLINDER UNIT (FOR 2 HEAD MODEL)

IC3501 (HEAD AMP)

PB-ON

AT ENV.

REC (H)

VIDEO (L) HEAD

VIDEO (R) HEAD

MAIN C.B.A.

REC AUDIO SIGNAL PB AUDIO SIGNAL

BATTERY CATCHER UNIT

MIC/IR UNIT

MIC

FP11
12

R4022
(WITHOUT FADE)

NOT USED

REG +4.5V

Q4011

TP4004

Q4007

AUDIO FADE CONTROL

(WITH FADE)

IC4001 (AUDIO REC/PB PROCESS)

REC

PB

ALC DET

ALC

LINE AMP

MUTE-OFF

REC-ON

SLP-ON

PB AMP

TP4003

TP4002

REC AMP

PB-ON

B2 15

B1 15

(FROM IC605 (7))
SP VOLUME CONTROL

B2 13

B1 13

(FROM IC6001 (32))
LCD PB(L)

B2 16

B1 16

(FROM IC6001 (17))
SPEAKER ON(H)

B2 12

B1 12

B2 6

B1 6

IC4301 (AUDIO AMP)

EVR

+3.3V

JK4401
EARPHONE JACK

SPEAKER

Q4302

IC4302 (AUDIO AMP)

NOT USED

JK1201
AUDIO OUT

AUDIO HEAD

FP1 10

FP1 8

AUDIO ERASE HEAD

FP1 7

FP1 6

CONTROL ERASE HEAD

FP1 4

FP1 5

REG +4.5V

Q4002

Q4003

Q4004

Q4008
T4001

BIAS OSC

Q4010

Q4009

(FROM IC3001(65))
AUDIO FADE CONTROL

(FROM IC3001(4))
SLP(H)

(FROM IC3001(3))
AUDIO EE(H)

FROM VIDEO BLOCK DIAGRAM

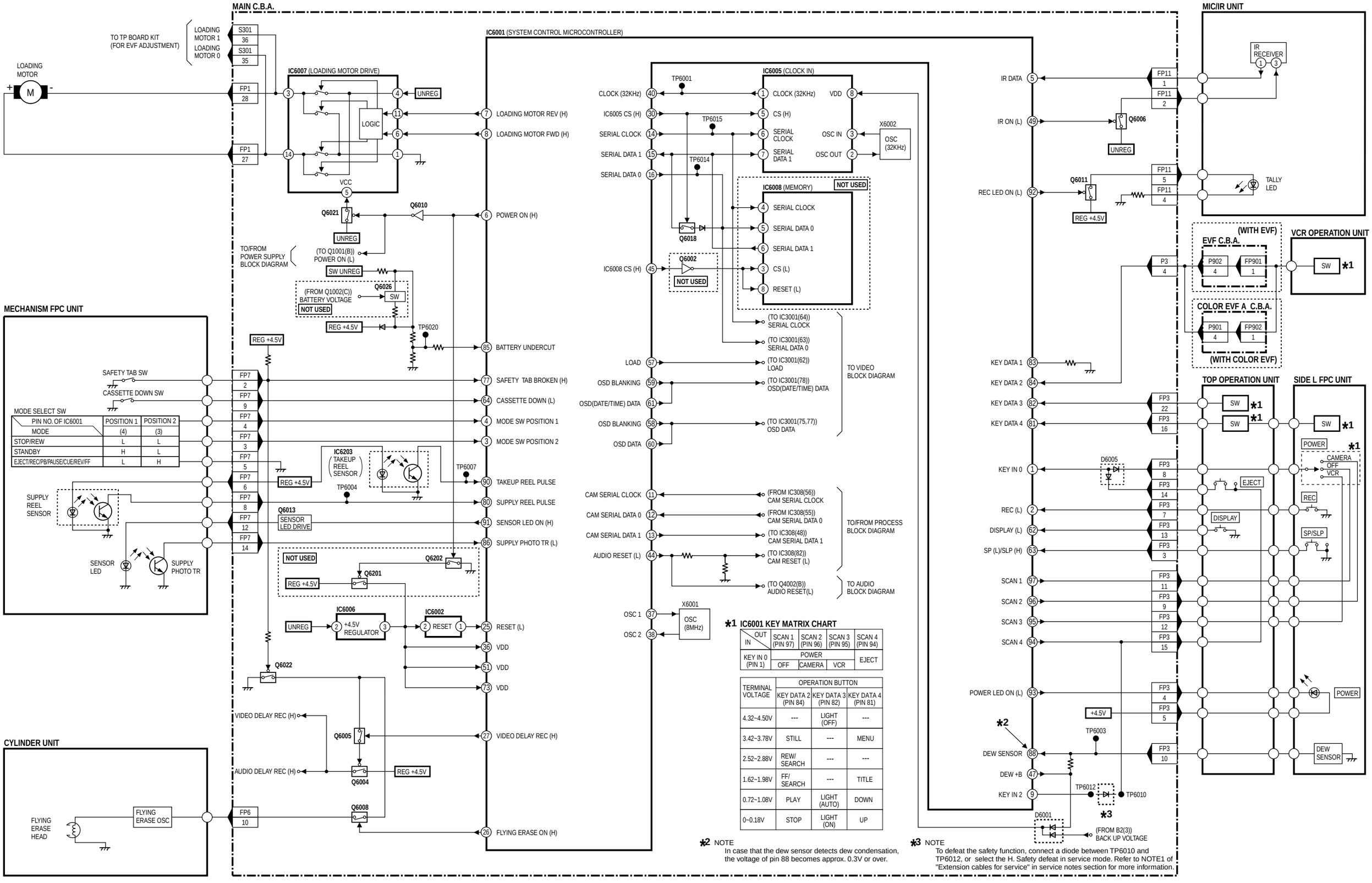
(FROM IC6001(56))
AUDIO MUTE(H)

(FROM IC6001(29))
AUDIO REC(H)

(FROM IC6001(44))
AUDIO RESET(L)

(FROM IC6001(28))
AUDIO DELAY REC(H)

TO/FROM SYSTEM CONTROL BLOCK DIAGRAM



*1 IC6001 KEY MATRIX CHART

OUT / IN	SCAN 1 (PIN 97)	SCAN 2 (PIN 96)	SCAN 3 (PIN 95)	SCAN 4 (PIN 94)
KEY IN 0 (PIN 1)	POWER			EJECT
	OFF	CAMERA	VCR	

TERMINAL VOLTAGE	OPERATION BUTTON		
	KEY DATA 2 (PIN 84)	KEY DATA 3 (PIN 82)	KEY DATA 4 (PIN 81)
4.32~4.50V	---	LIGHT (OFF)	---
3.42~3.78V	STILL	---	MENU
2.52~2.88V	REW/ SEARCH	---	---
1.62~1.98V	FF/ SEARCH	---	TITLE
0.72~1.08V	PLAY	LIGHT (AUTO)	DOWN
0~0.18V	STOP	LIGHT (ON)	UP

*2 NOTE
In case that the dew sensor detects dew condensation, the voltage of pin 88 becomes approx. 0.3V or over.

*3 NOTE
To defeat the safety function, connect a diode between TP6010 and TP6012, or select the H. Safety defeat in service mode. Refer to NOTE1 of "Extension cables for service" in service notes section for more information.

MAIN C.B.A.

CYLINDER UNIT

CYLINDER MOTOR

CYLINDER PG HEAD

CYLINDER FG HEAD

HALL IC

HALL IC

HALL IC

FP6 34,35

FP6 36,37

FP6 38,39

FP6 31

FP6 33

FP6 23

FP6 25

FP6 27

FP6 29

FP6 18

FP6 17

FP6 21

V-REF

IC2001 (CYLINDER/CAPSTAN MOTOR DRIVE)

LOGIC

TORQUE SATURATION DETECT

CYL VM

LOWER DRIVE CONTROL

UPPER DRIVE CONTROL

TORQUE COMMAND

IC2003 (CYLINDER MOTOR DRIVE)

DRIVE

TORQUE COMMAND

TORQUE DIRECTION CONTROL

DRIVE

IC2002 (CAPSTAN MOTOR DRIVE)

TORQUE SATURATION DETECT

CAP VM

DIRECTION SWITCH

LOWER DRIVE CONTROL

UPPER DRIVE CONTROL

CAPSTAN UNIT

CAPSTAN MOTOR

CAPSTAN FG HEAD

HALL IC

HALL IC

HALL IC

FP1 26

FP1 24

FP1 25

FP1 17

FP1 18

FP1 19

FP1 20

FP1 21

FP1 22

FP1 14

LOGIC

IC6001 (SERVO MICROCONTROLLER)

TP6206

TP6205

CONTROL HAED

FP1 2

FP1 3

REC CONTROL AMP

PB-ON

AMP

TP6202

TO TP BOARD KIT FOR EVF ADJUSTMENT

PB CONTROL

CAP FG

S301 22

S301 24

CYLINDER ON (L)

AMP

SCHMITT

COUNT DOWN

PG

SELECT

TP6207

D6201

PULSE WIDTH MODULATION

CAPSTAN SPEED COMPARATOR

CYLINDER/CAPSTAN PHASE COMPARATOR

V REF

TP6204

TP6210

TP6208

PULSE WIDTH MODULATION

CYLINDER SPEED COMPARATOR

FG

FG/ PG SEPARATOR

FG

HEAD SW SIGNAL GENERATOR

REC CONTROL /TR MM GENERATOR

HEAD AMP SELECT SIGNAL GENERATOR

HEAD AMP SW

V LOCK PULSE GENERATOR

V-LOCK PULSE

TP6201

HEAD SW

CAP TORQUE LIMIT

CAP DIRECTION CTL

FORCED ACCELERATION

ENVELOPE DETECTOR

ENVELOPE DET

TO/FROM VIDEO BLOCK DIAGRAM

CYLINDER VM

CAPSTAN VM

TRIANGLE WAVE

CAPSTAN SW

FROM/TO POWER SUPPLY BLOCK DIAGRAM

MAIN C.B.A.

MF VR UNIT

LENS UNIT

IC308 (CAMERA CONTROL)

MANUAL FOCUS 1 65
MANUAL FOCUS 0 64
AF/MF SW 57
ZOOM ENCODER 51
FOCUS ENCODER 50
LED CONTROL 58
ZOOM SWITCH DETECT 62
FOCUS MOTOR DRIVE CONTROL 0 93
FOCUS MOTOR DRIVE CONTROL 1 94
FOCUS MOTOR DRIVE CONTROL 2 95
FOCUS MOTOR DRIVE 0 96
FOCUS MOTOR DRIVE 1 97
FOCUS MOTOR DRIVE 2 98
FOCUS MOTOR DRIVE 3 99
ZOOM MOTOR DRIVE CONTROL 0 84
ZOOM MOTOR DRIVE CONTROL 1 85
ZOOM MOTOR DRIVE CONTROL 2 86
ZOOM MOTOR DRIVE 0 87
ZOOM MOTOR DRIVE 1 88
ZOOM MOTOR DRIVE 2 89
ZOOM MOTOR DRIVE 3 90
F NUMBER SIGNAL 63

FP4 6 V-REF (H) +3.3V
FP4 3
FP4 5
FP4 4
FP4 1
FP4 2
+3.5V

FP9 17
FP9 20 +4.5V

FP9 18
FP9 19
Q703 LED DRIVE

FP3 20
FP3 1
FP3 18 V-REF(H) +3.5V

TOP OPERATION UNIT
SIDE L FPC UNIT
ZOOM SWITCH

IC702 (FOCUS MOTOR DRIVE)
IC701 (ZOOM MOTOR DRIVE)
LOGIC CONTROL
MOTOR DRIVE

FP9 2
FP9 3
FP9 4
FP9 1
FP9 14
FP9 16
FP9 13
FP9 15

MF VR
FAR
NEAR
0°
SW820
AF/MF

MF 0
MF 1
3.8V
1.8V
0° 220° 0° 220°
OPEN
40° 180° 40° 180°

FOCUS ENCODER
ZOOM ENCODER

CCD
HALL ELEMENT
IRIS MOTOR
FOCUS MOTOR (STEPPING MOTOR)
ZOOM MOTOR (STEPPING MOTOR)

FP9 11
FP9 9
FP9 5
FP9 7
FP9 10
FP9 12
FP9 6
FP9 8

(FROM IC605 (7)) HALL AMP GAIN CONTROL
(FROM IC605 (8)) IRIS CONTROL
(FROM IC605 (5)) HALL OFFSET CONTROL
FROM CCD DRIVE BLOCK DIAGRAM

V-REF(L) +1.3V

IC309 (HALL AMP)

Q310 BUFFER
Q311 HALL AMP DRIVE

MAIN C.B.A.

MIC/IR UNIT

LIGHT UNIT

FP11 6,7 — FJ4301 7,8 — FJ4304 1

FP11 8,9 — FJ4301 5,6 — FJ4304 2

BATTERY CATCHER UNIT

DC JACK

BATTERY JACK

COIN BATTERY

B1 7,8 — B2 7,8

B1 5 — B2 5

B1 1,2,4 — B2 1,2,4

B1 3 — B2 3

(TO JK1201(1)) RF +4.7V — B1 9 — B2 9

Q1101

Q1103 OVER VOLTAGE PROTECT

Q1105

Q1102

D1102

Q1106 LATCH

Q1104

(FROM IC6001(55)) LIGHT ON (H)

Q1014

Q1015

CYLINDER VM

REG +4.8V

UNREG

LED +4.5V

EVF +4.5V

REG +4.5V

AF +4.5V

CAM +4.5V

F1002

F1001

L1001

Q1005 +4.5V CONTROL

L1002

L1012

L1005

L1006

L1007

IC1001 (PWM CONTROL)

PWM CONTROL — DRIVE — 26

ERROR AMP — 31

PWM CONTROL — DRIVE — 17

ERROR AMP — 4

PWM CONTROL — DRIVE — 11

ERROR AMP — 6

PWM CONTROL — DRIVE — 20

ERROR AMP — 32

Q1006 +3.5V CONTROL

L1004

L1015

L1008

REG +3.3V

CAM +3.5V

REG+3.5V

Q1007 CAMERA POWER CONTROL

T1001

D1005

D1006

D1007

CAM +15V

EVF +15V

AF+8.6V

CAM -8V

Q1008 +4.5V CONTROL

L1003

BL+4.5V

EVF+4.5V

R1057 (WITHOUT LCD)

Q1020

Q1021

(WITH LCD)

(FROM IC6001(18)) EVF ON(H)

Q1009 CAP VM CONTROL

T1002

CAPSTAN VM

Q1010

(FROM IC2001(49)) CAPSTAN SW

(WITH 2HEAD) Q1012

Q1013

(WITH 4HEAD) NOT USED

ERROR AMP Q1011

38 REFERENCE VOLTAGE REGULATOR

37 VDD

40 SHORT CIRCUIT PROTECTOR

45 TRIANGLE WAVE OSCILLATOR

(TO IC6005(8)) BACK UP VOLTAGE

(TO Q6026(B)) BATTERY VOLTAGE — Q1002

(FROM Q6010(C)) POWER ON (L) — Q1001

(TO Q6026(E)) SW UNREG

(TO Q6012(G)) VOLTAGE DOWN

TO/FROM SYSTEM CONTROL BLOCK DIAGRAM

TO SERVO BLOCK DIAGRA

(TO IC2001(50)) TRIANGLE WAVE — Q1003 BUFFER

MAIN C.B.A. LSEP8024E1 (A) / LSEP8024D1 (B) / LSEP8024A1 (C) / LSEP8024F1 (D) / LSEP8024C1 (E) / LSEP8024B1 (F)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 3A 32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 3A 32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 63V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.5A 63V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

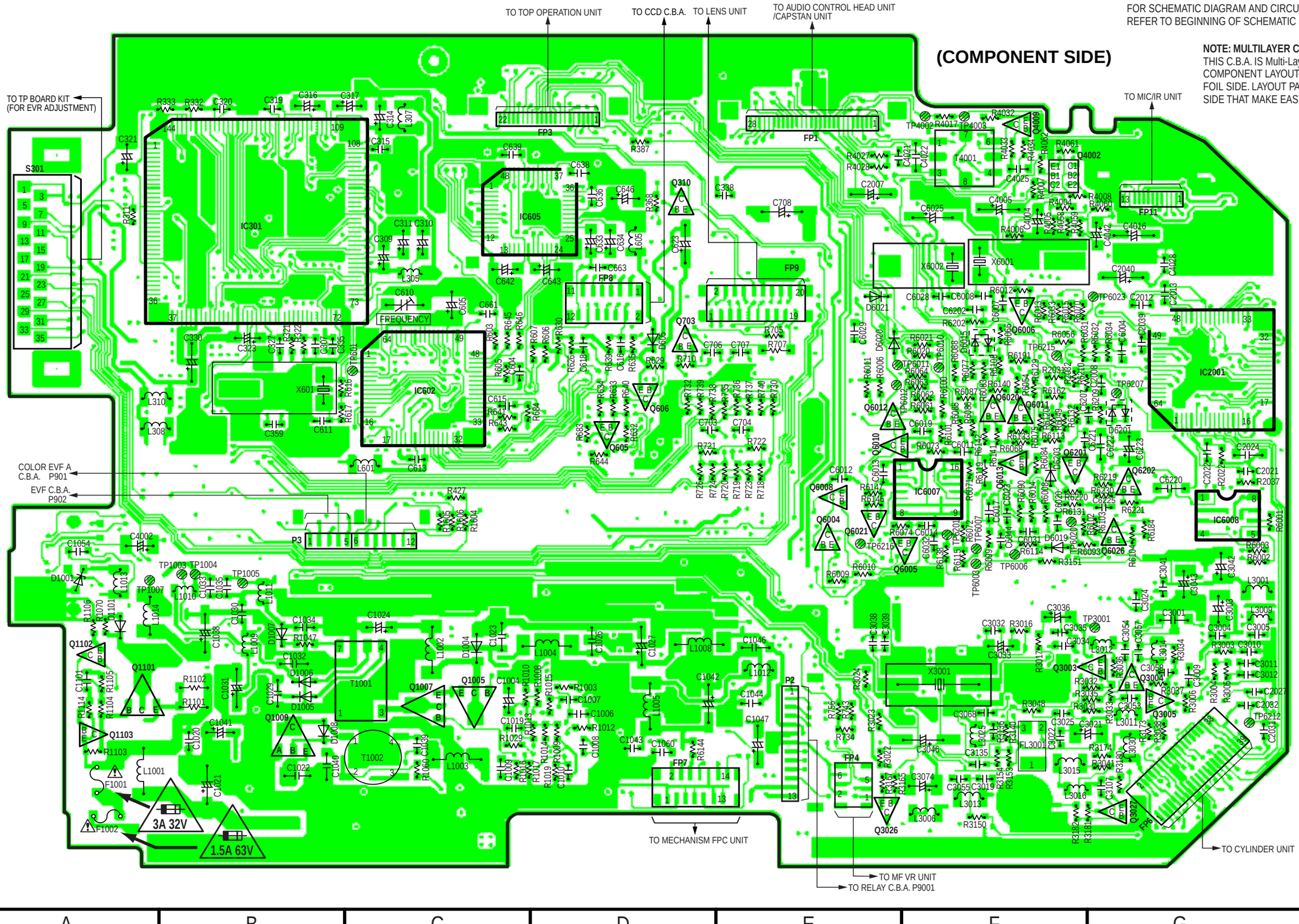
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

(COMPONENT SIDE)



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

LSJB8024

MAIN C.B.A. LSEP8024E1 (A) / LSEP8024D1 (B) / LSEP8024A1 (C) / LSEP8024F1 (D) / LSEP8024C1 (E) / LSEP8024B1 (F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

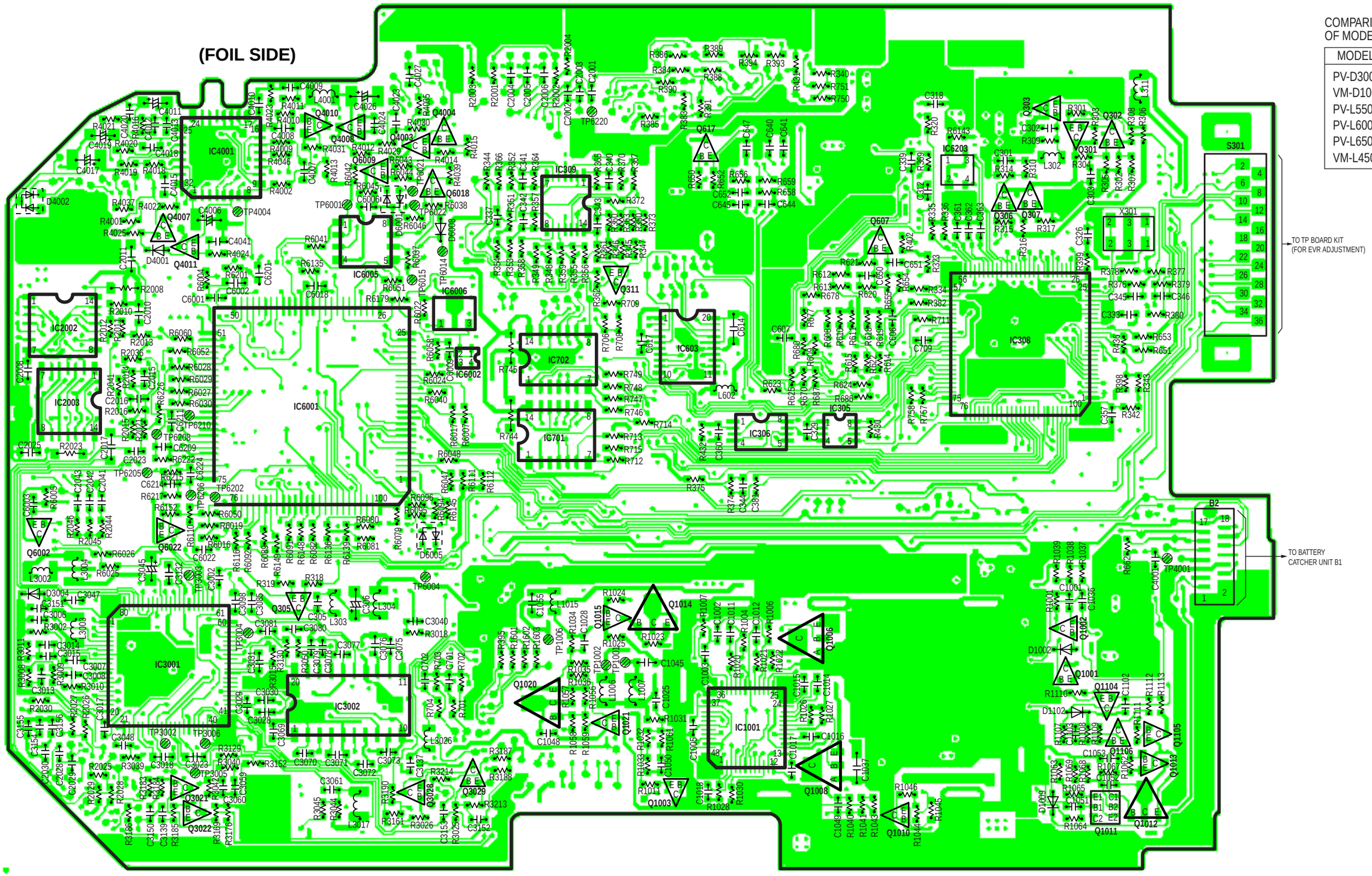
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

(FOIL SIDE)



LCD C.B.A. LSEP8030A1 (C) / LSEP8030B1 (D, F)

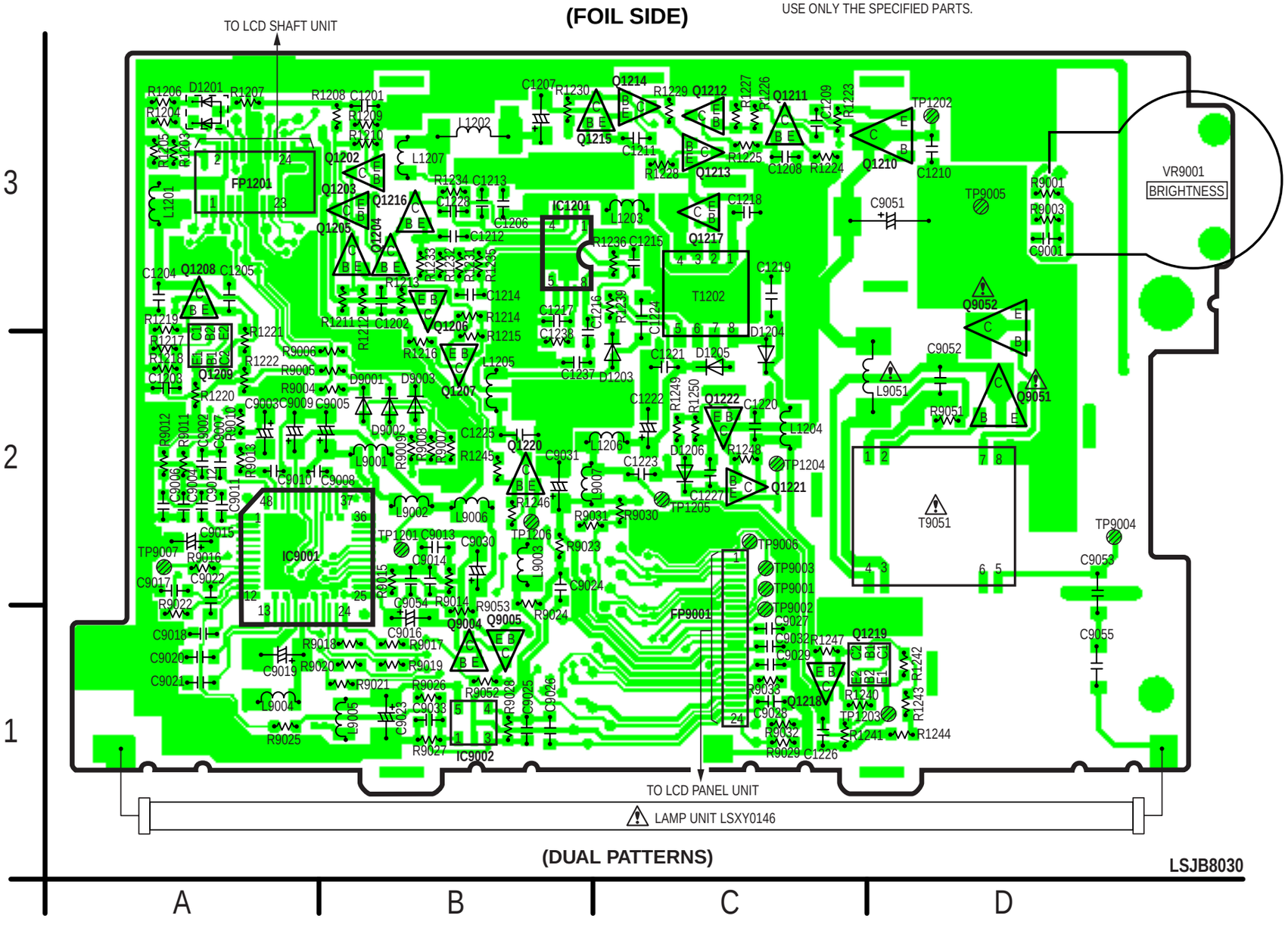
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

(FOIL SIDE)

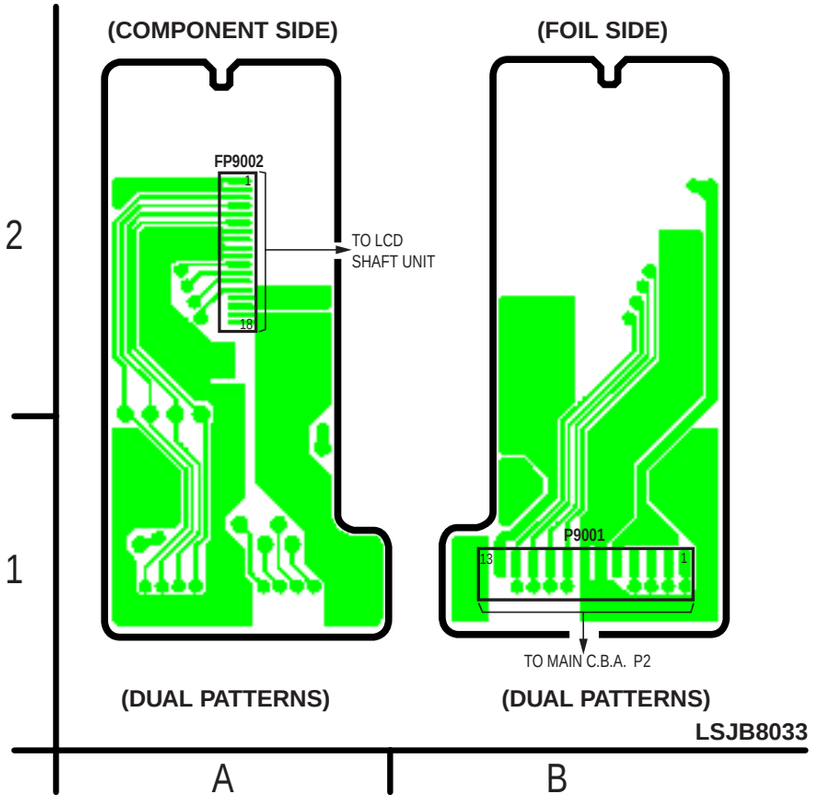


(DUAL PATTERNS)

LSJB8030

A B C D

1 2 3



(DUAL PATTERNS) (DUAL PATTERNS)

LSJB8033

A B

1 2

RELAY C.B.A. LSEP8033A1 (C, D, E, F)

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

LCD C.B.A. LSEP8031A1 (E)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

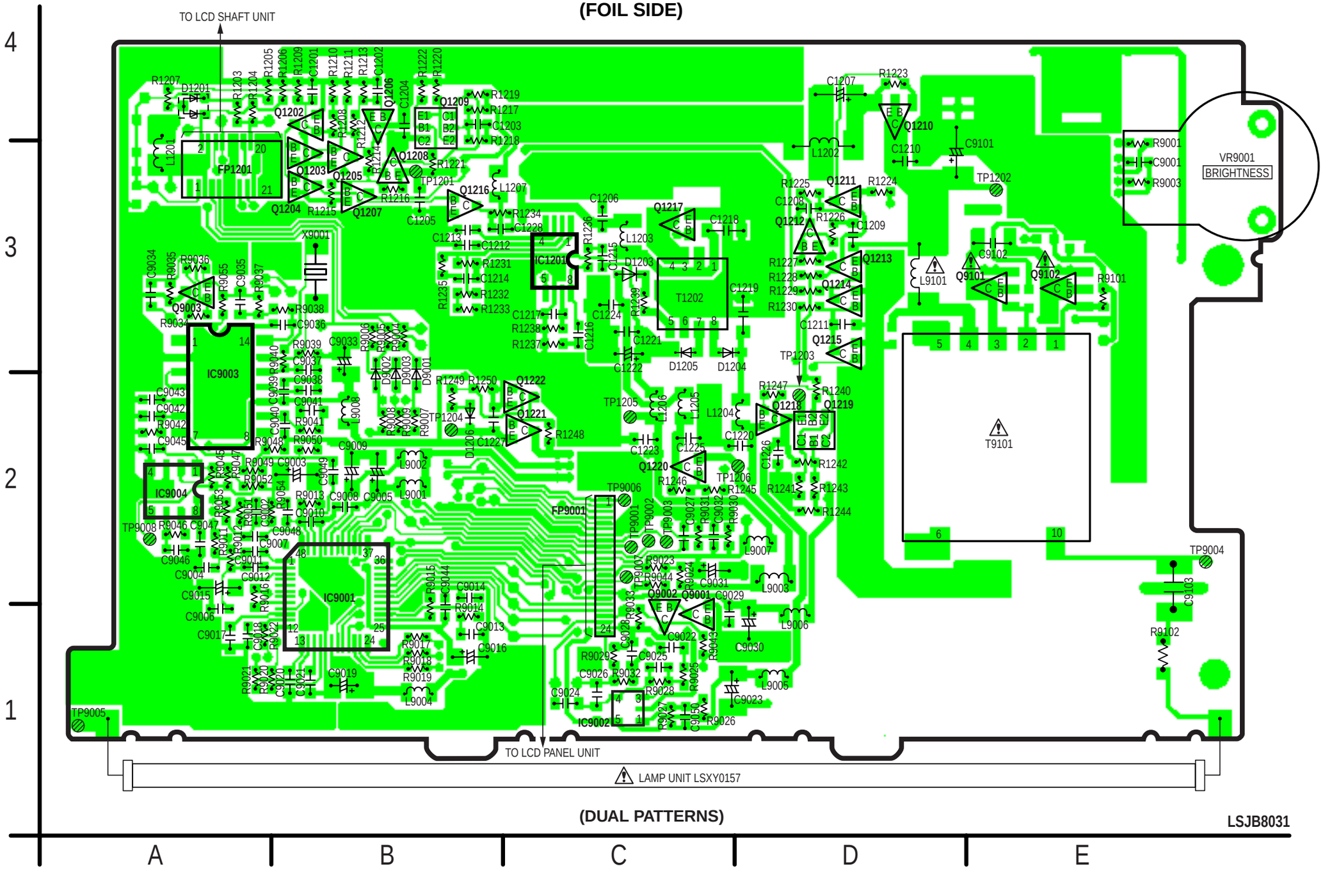
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

(FOIL SIDE)



(DUAL PATTERNS)

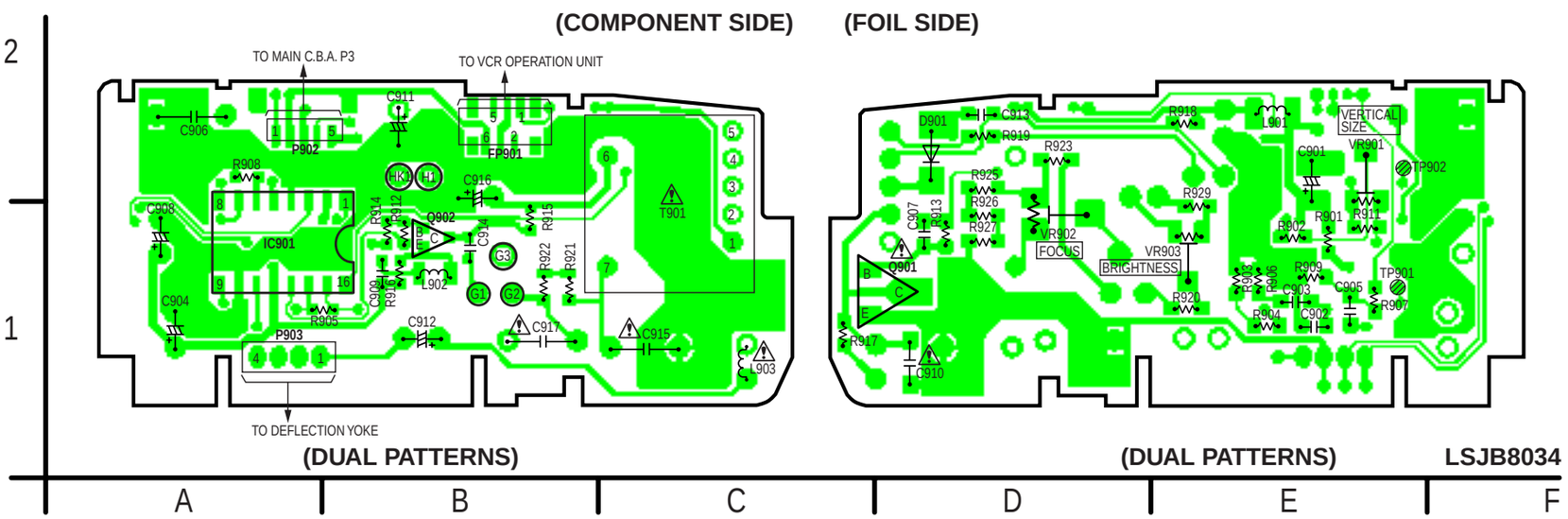
LSJB8031

EVF C.B.A. LSEQ0558 (B, C, D, E, F)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

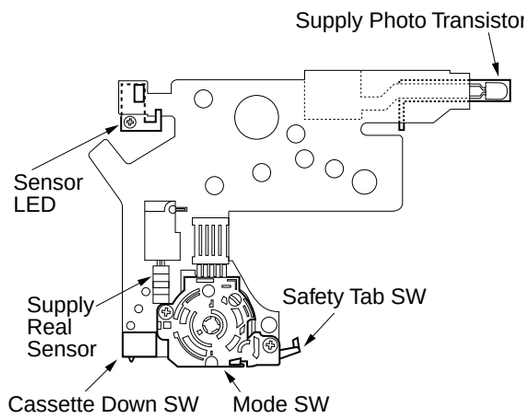
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



MECHANISM FPC UNIT

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



COMPARISON CHART
OF MODELS & MARKS

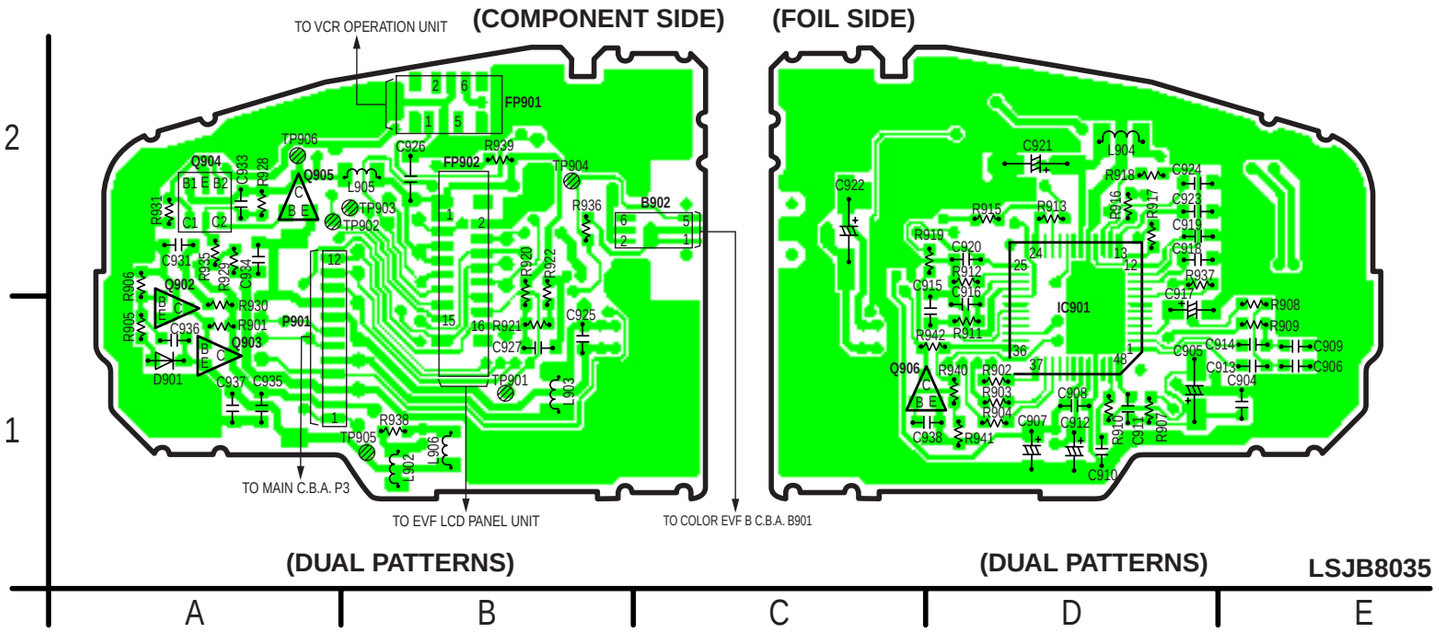
MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COLOR EVF A C.B.A. LSEP8035A1 (A)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

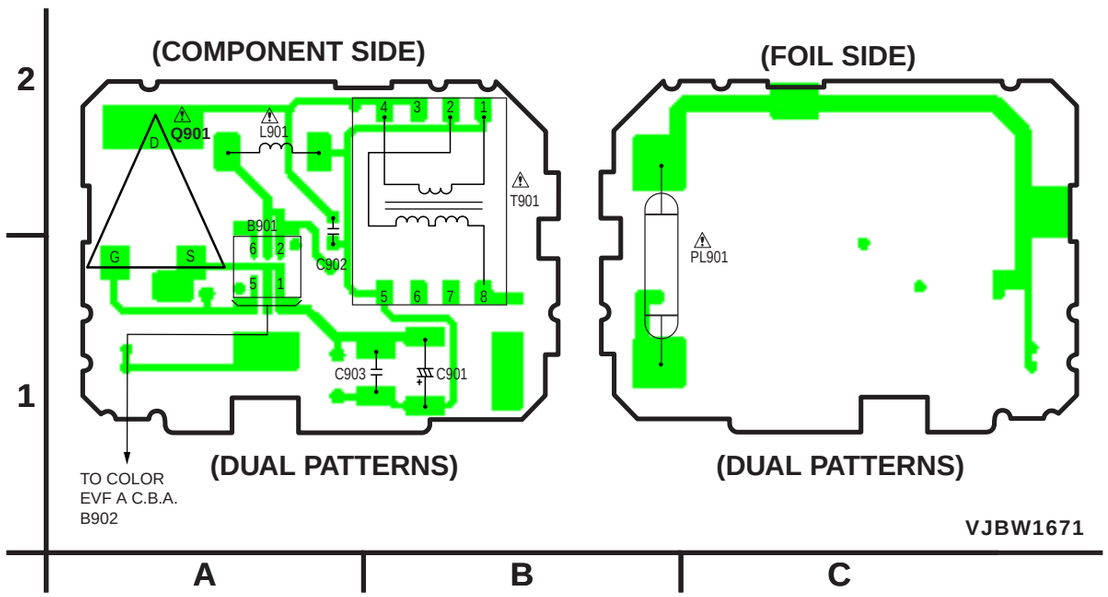
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



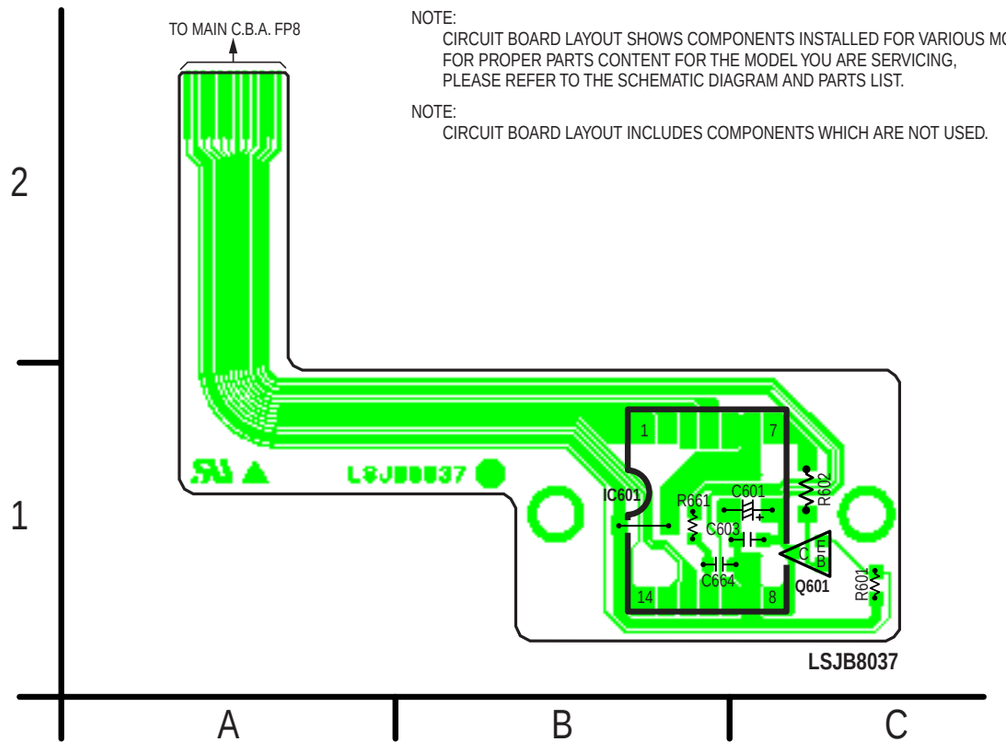
COLOR EVF B C.B.A. VEPW1671A1 (A)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.



CCD C.B.A. LSEQ0547



NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
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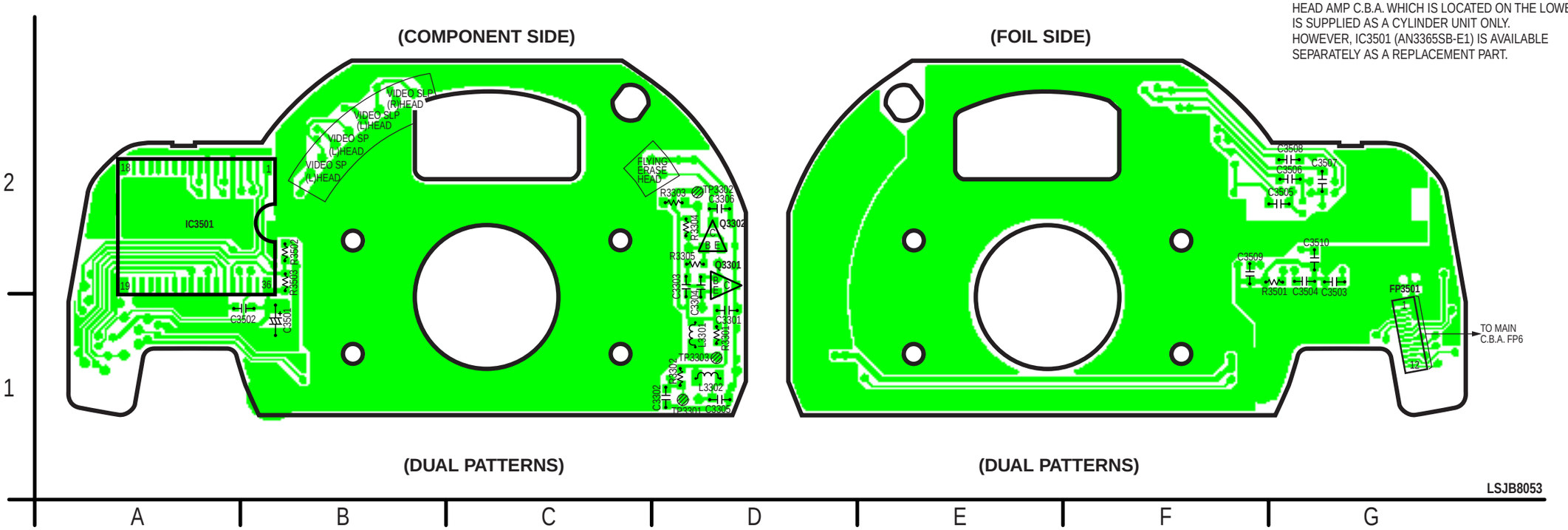
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

HEAD AMP C.B.A.

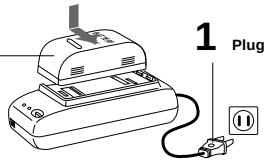
NOTE:
HEAD AMP C.B.A. WHICH IS LOCATED ON THE LOWER CYLINDER
IS SUPPLIED AS A CYLINDER UNIT ONLY.
HOWEVER, IC3501 (AN3365SB-E1) IS AVAILABLE
SEPARATELY AS A REPLACEMENT PART.



Quick Operation Guide

Charging the Battery Pack

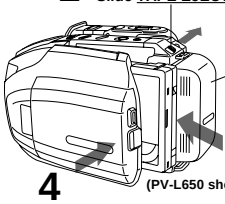
Charge Battery Pack fully before operation.



2 **Insert Battery.** CHARGE Lamp lights and then goes out when charging is done.

1 **Plug in AC Adaptor.**

Insert Cassette



2 **Slide TAPE EJECT** to open door.

1 **Attach fully charged Battery.**

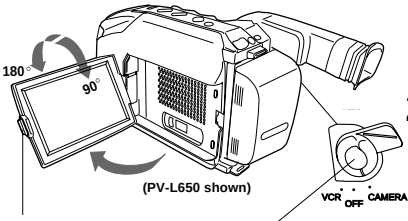
3 **Insert cassette.**

4 **Press here** to close door.

(PV-L650 shown)

Camera Recording

When the LCD monitor is open, the EVF automatically turns OFF.



(PV-L650 shown)

2 **Set POWER to CAMERA.**

1 **Press LCD-OPEN** to unlock the LCD monitor. **Swing it fully open and adjust the angle.**

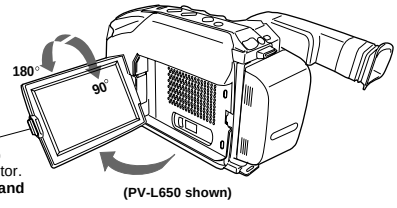
3 **Press RECORD/PAUSE** to start recording.
Press RECORD/PAUSE again to pause recording.

(PV-L550/PV-L600/PV-L650/VM-L450)

Playback using the LCD Monitor

Before you begin...
- **Charge Battery Pack fully before operation.**

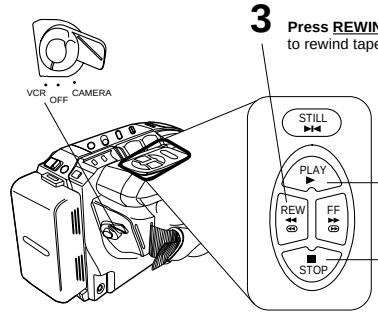
When the LCD monitor is open, the EVF automatically turns OFF.



(PV-L650 shown)

1 **Press LCD-OPEN** to unlock the LCD monitor. **Swing it fully open and adjust the angle.**

2 **Set POWER to VCR.**



3 **Press REWIND/SEARCH** to rewind tape.

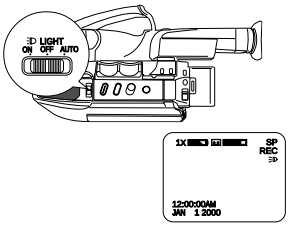
4 **Press PLAY** to start playback.

5 **Press STOP** to stop playback.

Built-in Auto Light

Using the Light

For recording in dim lighting.



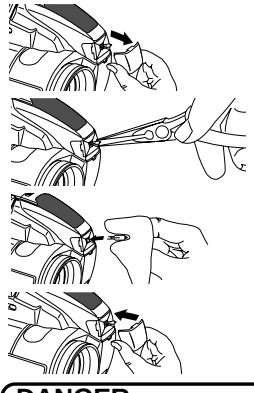
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Set LIGHT to AUTO.
Light turns on/off automatically according to lighting conditions.
Or, set LIGHT to ON/OFF manually.

appears in EVF or LCD Monitor when Light is on.

Caution:
Light becomes hot. Never cover Light while on.

Replacing the Bulb



Before you begin...
- **Order Part No. VULS0001 (VLLW0015 and cushions) for replacement bulb unit.**
- **Set POWER to OFF.**

1 **Press in on both sides of lens cover and pull straight out and off.**

2 **Using Tweezers or needle-nose pliers, carefully remove bulb.**
- Take unit to service center if you need assistance.

3 **Replace bulb using a clean cloth or tissue.**

4 **Replace lens cover.**

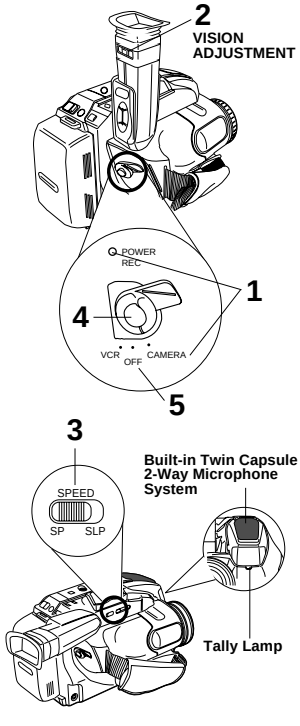
DANGER:

Use only replacement bulb (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new bulb with cloth or tissue as skin oils will decrease bulb life.
Remove lens cover and allow bulb to cool before replacing to avoid possible burn hazard.

Note:
- Using Light reduces battery operating time.
- Provide proper ventilation when using Light extensively in hot environment.
- Using Light when the Camcorder is powered by a car battery may shorten bulb life.
- Set Light to OFF when not in use.
- Handle bulb gently. Excessive force may cause bulb to crack.

Camera Recording

Simple Recording



Before you begin...
- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to CAMERA.**
Lens Cover opens.
Power lamp lights.
- Be sure POWER is fully turned to CAMERA position.

EVF or LCD Monitor

PAUSE

Record/Pause mode.

2 **Look into EVF and adjust VISION ADJUSTMENT to your eyesight.**

3 **Slide TAPE SPEED** to SP or SLP.

4 **Press RECORD/PAUSE** to start or pause recording.
Tally lamp lights if set to ON.

RECORD

5 **Set POWER to OFF** when finished.
- **To remove cassette,** slide TAPE EJECT in Record/Pause mode.

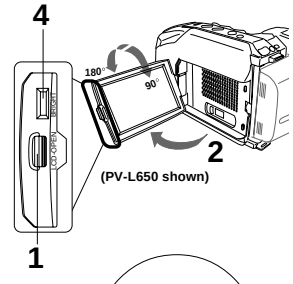
Note:
- When Camcorder is aimed at excessively bright objects, or bright lights, a vertical bar may appear in the picture. This is normal for the CCD pick-up. Try to avoid this when possible.

Camera Recording

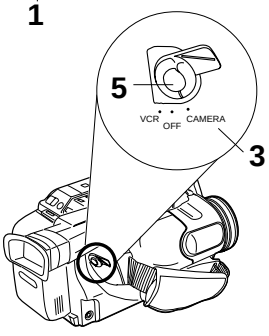
(PV-L550/PV-L600/PV-L650/VM-L450)

Using the LCD Monitor

View recording scene on the LCD (Liquid Crystal Display) monitor.



(PV-L650 shown)



Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Press LCD-OPEN to unlock LCD monitor.**

2 **Swing LCD monitor fully open and adjust viewing angle.**

Caution:
Rotating partially open LCD monitor may block cassette door and damage Camcorder body.

3 **Set POWER to CAMERA.**
- LCD monitor turns on/off by the POWER switch.
- EVF shuts off when LCD monitor is opened and turns back on when LCD is closed.
- Both EVF and LCD monitor turn on when LCD is at 180° (see above left).
  This allows both you and the subject to view the recording.

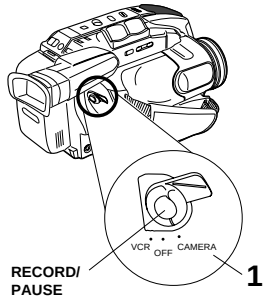
4 **Turn BRIGHT control to adjust LCD monitor brightness level.**

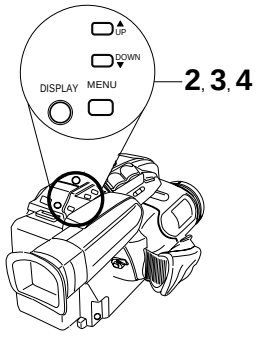
5 **Press RECORD/PAUSE to start recording.**

Note:
- Using LCD monitor reduces battery operation time.
- Return LCD monitor to locked position when not in use.

Stand-by Quick Release

If left in RECORD/PAUSE mode for 5 minutes, Camcorder switches to Stand-by mode to conserve battery. When set to ON, Stand-by Quick Release lets you resume recording by pressing RECORD/PAUSE two times. New camcorders will default to OFF.





Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to CAMERA.**

2 **Press MENU for MENU mode. Press UP ▲ or DOWN ▼ to select STAND-BY RELEASE.**

3 **Press DISPLAY to select ON/OFF.**

ON: From Stand-by mode,
press RECORD/PAUSE two times to resume recording.

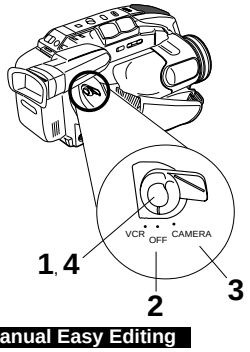
OFF: From Stand-by mode,
set POWER to OFF, then to CAMERA.
Press RECORD/PAUSE to record.

4 **Press MENU to exit.**

Camera Recording (continued)

Easy Edit Stand-by

For a smooth transition between scenes if recording is stopped, and then started within 24 hours.



Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Press RECORD/PAUSE to stop recording.**

2 **Set POWER to OFF and leave cassette in Camcorder.**

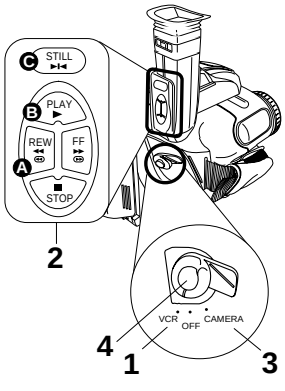
3 **To resume recording, set POWER to CAMERA.**

4 **Press RECORD/PAUSE to resume recording.**

Note:
- Use Manual Easy Edit (below) if more than 24 hours before recording is resumed.

Manual Easy Editing

For proper continuity when taping from Stop mode or after attaching a new Battery.



Before you begin...

- **Connect Camcorder to power source.**
- **Insert cassette with record tab.**

1 **Set POWER to VCR.**

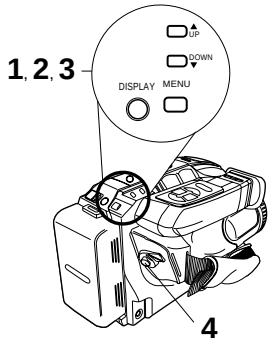
2 **Ⓐ Press REWIND/SEARCH to rewind a few seconds of tape.**
Ⓑ Press PLAY to review recording.
Ⓒ Press STILL where you want to continue recording.

3 **Set POWER to CAMERA.**

4 **Press RECORD/PAUSE to resume recording.**

Programmed Recording

Set a recording start and stop time. Or, set a 5 or 10 second interval recording to be done each minute.



10MIN. → 20MIN. → 30MIN. → TO TAPE END
INTERVAL *2 10 SEC/MIN. ← INTERVAL *1 5 SEC/MIN.

***1 Interval 5 SEC/MIN:**
Record 5 seconds each minute.

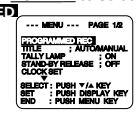
***2 Interval 10 SEC/MIN:**
Record 10 seconds each minute.

Note:
- Start time may not be set over 24 hours from current time.
- Camcorder shuts off at tape end, or 12 hours after Interval Recording starts.
- To cancel, set POWER to OFF.

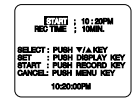
Before you begin...

Connect Camcorder to power source.
Use AC Adaptor for longer recordings.
Insert cassette with record tab.
Set POWER to CAMERA.

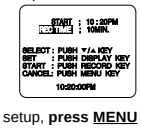
1 **Press MENU for MENU mode. Press UP ▲ or DOWN ▼ to select PROGRAMMED REC.**



2 **Press DISPLAY.** (Current time is displayed.)
Each additional press of DISPLAY increases start time by 30 minutes.

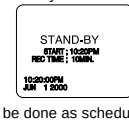


3 **Press DOWN ▼ to select REC TIME. Press DISPLAY repeatedly to select one of the options shown at the left.**



To cancel the setup, **press MENU twice.**

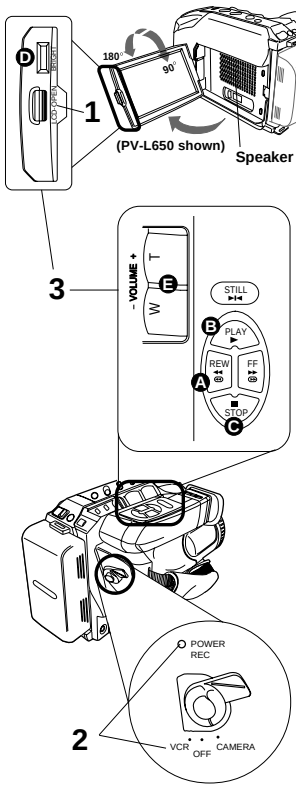
4 **Press RECORD/PAUSE to place Camcorder in stand-by mode.**



Recording will be done as scheduled.

Playing Back Recordings

Playback on EVF or LCD Monitor

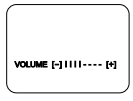


Before you begin...
- **Connect Camcorder to power source.**
- **Insert recorded tape.**

1 **Press LCD-OPEN** and swing LCD monitor fully open.
- If you want to playback on EVF, close and lock LCD monitor.

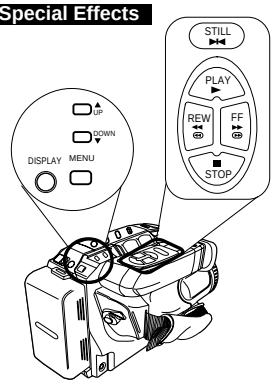
2 **Set POWER to VCR.**
Power lamp lights.
- If tape has no record tab, auto playback begins.
- EVF or LCD monitor turns on/off by the POWER switch.
- EVF shuts off when LCD monitor is opened and turns back on when LCD is closed.

3 **Playback function buttons.**
- **A REW**(ind) : rewind tape.
- **B PLAY** : play tape.
- **C STOP** : stop tape.
- **D BRIGHT** : adjust LCD monitor brightness.
- **E VOLUME** : Adjust volume of speaker.
  Press "T" : Volume up(+).
  Press "W" : Volume down(-).



Note:
- Using LCD monitor reduces battery operating time.
- Return LCD monitor to locked position when not in use.

Special Effects



Before you begin...
- **Connect Palmcorder to power source.**
- **Insert recorded tape.**
- **Set POWER to VCR.**

Quick Visual Search

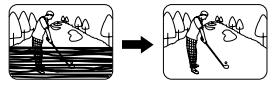
Search Speed
SP (Standard Play) : 3 times normal.
SLP (Super Long Play) : 9 times normal.

During playback, press:
FF : fast forward search
REW : rewind search
Press again or press PLAY for normal play.

Still Picture
Press STILL to freeze picture.
Press again for normal play.
This feature is works best in SLP mode.

- During search, horizontal noise bars will appear. Audio is muted.
- To protect video heads and tape, operating modes will revert as follows after 5 minutes:
  Still → Stand-by
  Stand-by → Power off (when Battery Pack is used).
- Tape auto-rewinds if played or fast forwarded to end.

Tracking Control



Auto Tracking
Continuously analyzes each recording for optimum picture quality.

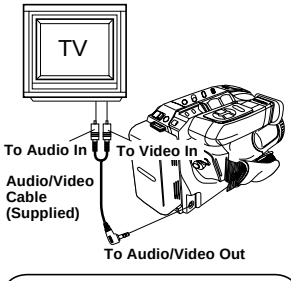
Manual Tracking
Some recordings require manual adjustment to reduce noise.
Press UP▲ or DOWN▼ until Playback picture clears up.
Press DISPLAY to return to Auto Tracking.

Playing Back Recordings (continued)

TV Playback or Viewing

Connect Camcorder to a TV to view playback or recordings in progress.

TV with AUDIO/VIDEO IN Jacks.



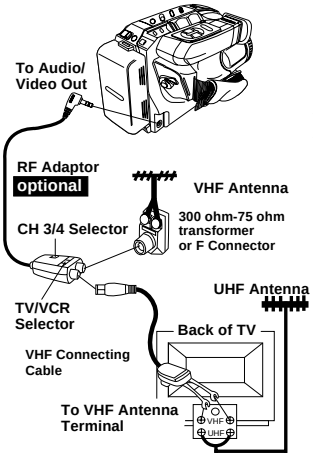
Before you begin...
- **Connect Camcorder to power source.**
- **Make all TV-Camcorder connections.**

1 **Set POWER to:**
VCR → view playback.
CAMERA → view picture as it is recorded.

2 **Turn TV ON and set to LINE INPUT.**
See TV owner's manual.

3 **Begin playback or recording.**

TV without AUDIO/VIDEO IN Jacks.



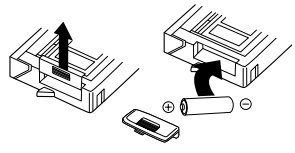
If TV has no VIDEO/AUDIO IN jacks, connect PV-RF16 RF Adaptor (optional). Tune TV to CH 3 or 4 to match RF Adaptor CH 3/4 Selector. Set Adaptor's TV/VCR Selector to VCR for playback.

To watch TV only,
a Set Camcorder POWER to OFF.
b Set RF Adaptor TV/VCR Selector to TV.
c Turn TV ON and select channel.

CATV System Installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical Code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

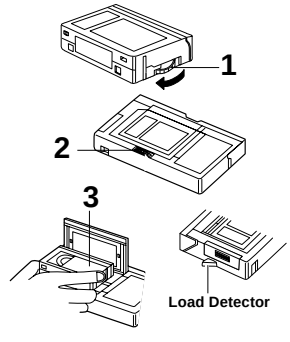
Playing Back Recordings in a VCR

Load Battery in PlayPak



Remove Battery lid and insert AA battery.
- Do not reverse polarity.
- Replace battery when tape loading/ unloading takes longer than usual.

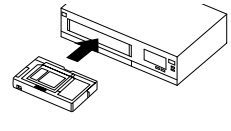
Insert VHS C Cassette in PlayPak



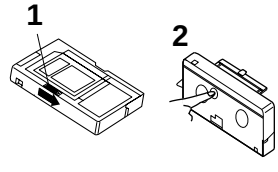
1 **Turn VHS C cassette Tape Wheel in direction of arrow** to take up any slack.

2 **Slide RELEASE** to open cassette lid.

3 **Insert the VHS C cassette** with the window up and on the left, **then snap lid shut.**
- Do not obstruct cassette reel while loading.
- Allow PlayPak Load Detector to fully retract before using in VHS VCR.



Remove VHS C Cassette

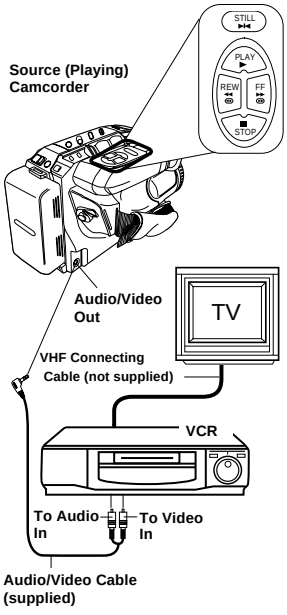


1 **Slide RELEASE** and wait for lid to open.

2 **Push cassette out through** hole in bottom of PlayPak with your finger.

Copying your Tapes (dubbing)

Connections



Before you begin...
- **Make Camcorder-VCR connections (see left).**
- **Turn both units on.**
- **Set VCR input signal to LINE. Please see VCR owner's manual.**
- **Set Camcorder POWER to VCR.**

1 **Insert a pre-recorded tape** into Camcorder and a blank tape with record tab into VCR.

2 **Press PLAY** on Camcorder, then **press STILL** at starting point.

3 **Press REC, then STILL/PAUSE on VCR.**

4 **Press STILL** on Camcorder and **STILL/PAUSE** on VCR again to start copying.

5 **Press STOP on both units to stop copying.**

Note:
- Camcorder will only playback tapes recorded in SP or SLP mode.
- Dubbing may reduce picture quality.

Monitor with your TV

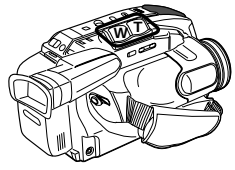
- Turn TV on and tune to VCR channel (CH3 or CH4).
- Set TV/VCR Selector on VCR to VCR.

CAUTION:
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

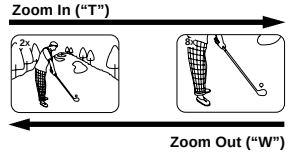
Power Zoom / Backlight

Four-Speed Power Zoom

Zoom in (close up) and out (wide angle) in one of four speeds ranging from slow (16 seconds) to fast (2 seconds).



Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

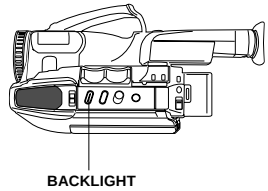


Zoom slowly:
Lightly press "T" (telephoto) or "W" (wide angle) POWER ZOOM button.

Zoom quickly:
Apply more pressure to the button.

Backlight

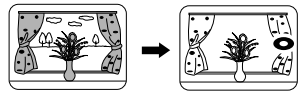
Use when subject is darker than surroundings, in shadowed area, or in front of the light source.



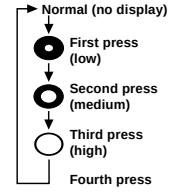
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Press BACKLIGHT while recording to select the level of backlight compensation.

In normal lighting, **press BACKLIGHT** repeatedly until no indicator displayed.

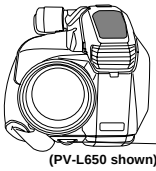


EVF or LCD Monitor



Focus

Auto Focus



(PV-L650 shown)

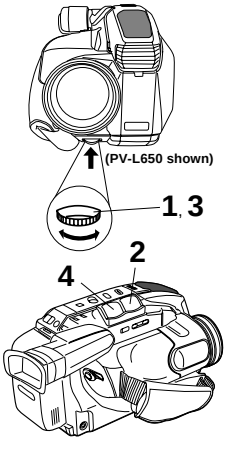
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

Camcorder automatically focuses on subject even during zooming.

Auto Focus is on when "MF" is not displayed in EVF or LCD monitor. **Push MANUAL FOCUS** to remove "MF" in EVF or LCD monitor if necessary.

Manual Focus

Use Manual Focus (MF) when :
- recording through glass.
- lighting is poor.
- subject is far away with objects in foreground.
- subject has distinct horizontal lines.
- subject is not centered in EVF or LCD monitor.
- subject has shiny surface.
- subject is slanted.
- subject is bright and flat, like a white wall.
- subject has fast motion, like a golf swing.



1 **Push MANUAL FOCUS** so "MF" (Manual Focus) appears in EVF or LCD monitor.

EVF or LCD Monitor

2 **Hold down "T" (telephoto) on POWER ZOOM** to maximum zoom in.

3 **Turn MANUAL FOCUS** until subject is in focus.
- Back away from subject if necessary.

4 **Hold down "W" (wide angle) on POWER ZOOM** as desired.

- **Refocus as needed** when aiming at new scenes.

Macro Focus (close-ups)

Auto Focus functions up to 12.7 mm (1/2 inch) from subject.
Hold down "W" on POWER ZOOM to maximum wide angle.
Bring Camcorder up close to the subject.

High Speed Shutter

Improves Still or Slow Motion playback picture of high speed subjects (e.g. a tennis stroke), when viewed on Camcorder or 3 or 4 head VCR.

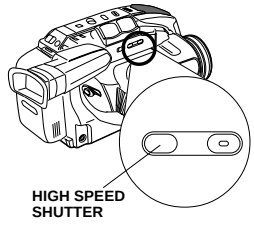
Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Insert cassette with record tab.**

Auto Shutter

In AUTO mode (no indication in EVF or LCD Monitor), shutter speed is auto-adjusted from 1/60 to 1/350 according to subject brightness.
- AUTO mode is selected each time POWER is set to CAMERA.

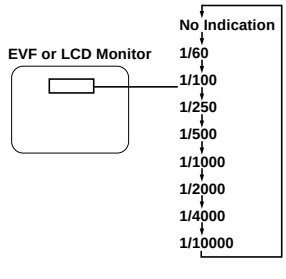
Manual Selection

The faster the shutter speed, the more light is needed for proper picture and color quality. High Speed Shutter indication flashes if light is inadequate. Provide additional light.



1 **Press HIGH SPEED SHUTTER** while recording.

2 **Press repeatedly** to change shutter speed.
(See below, left.)

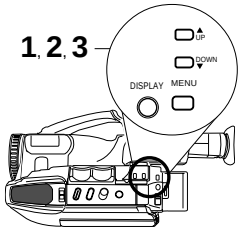


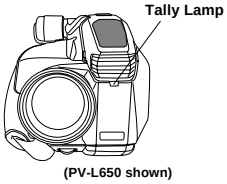
Note:
- Provide additional halogen or tungsten light for use indoors or in poor light. Fluorescent light degrades picture.
- Auto Focus may not function properly if high speed shutter is used in inadequate light.
- Setting reverts to AUTO each time POWER is set to CAMERA.

Tally Lamp

Tally Lamp

The tally lamp can be set to come on or stay off during recording.
New camcorder's default setting is ON.



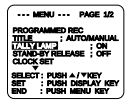


(PV-L650 shown)

Before you begin...

- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Insert cassette with record tab.**

1 **Press MENU for MENU mode.**
Press UP ▲ or DOWN ▼ to select TALLY LAMP.



2 **Press DISPLAY to select:**
ON → lamp lights during recording.
OFF → lamp stays off.

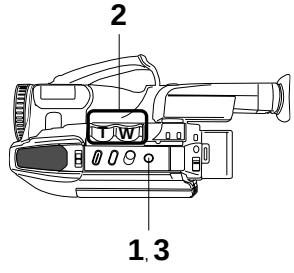
3 **Press MENU to exit.**

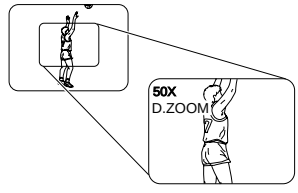
Digital Zoom

Power Zoom magnification is digitally increased.

Before you begin...

- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**





1 **Press DIGITAL ZOOM.**
D.ZOOM mode (150X maximum).

Higher digital magnification levels may cause picture distortion.

2 **Hold down "T" on POWER ZOOM.**
Digital Zoom starts when normal zoom reaches maximum (18X).

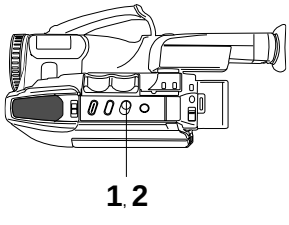
- Zoom level appears in EVF or LCD monitor.
- POWER ZOOM switch controls digital zoom level.
- Normal zoom resumes when level falls to 18X.

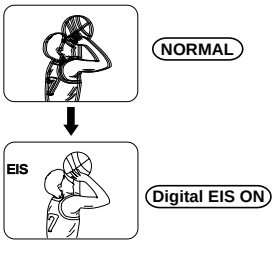
3 **Press DIGITAL ZOOM to turn off Digital Zoom so no indication appears.**

Digital E.I.S.

Digital Electronic Image Stabilization (E.I.S.)

Helps stabilize picture when recording in unstable situations.





Before you begin...

- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**

1 **Press EIS to display "EIS" in the EVF or LCD monitor.**
- Image becomes slightly enlarged and shutter speed auto-adjusts from 1/80 to 1/350 according to brightness.
- Use High Speed Shutter if needed. Shutter speed setting remains after EIS is canceled.

2 **Press EIS again to cancel when not in use.**

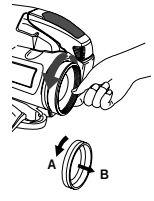
E.I.S. may not function during...
- extreme Camcorder movement.
- recording of subject with distinct horizontal or vertical stripes.
- low light situations (EIS indicator flashes).
- intense fluorescent lighting situations.
- recording of very fast motion.

Operation Notes

Attaching Optional Filters and Lenses

When you remove the Lens Hood, pinch the Lens Hood and turn it counterclockwise as illustrated at right.

Then attach an optional filter or lens.
- Be careful not to touch the lens itself.
- Replace the Lens Hood after removing the accessory.



Lens Hood Area Operation Caution

With a Wide or Telephoto conversion lens (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

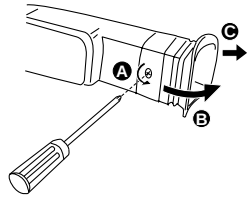
When attaching the lens hood, a Wide or Telephoto conversion lens (optional), etc. after a filter (optional) has been attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

With two filters (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

Cleaning EVF (Electronic Viewfinder)

(VM-D100/PV-L550/PV-L600/PV-L650/VM-L450)

To Remove



1 Ⓐ Remove the screw with a Phillips screwdriver.
Turn counterclockwise.
Ⓑ Turn the EVF Eyepiece.
Ⓒ Pull the EVF Eyepiece.

2 Remove any lint or dust particles with a soft clean cloth being careful not to scratch the glass surfaces.

3 Replace the EVF Eyepiece and the screw.

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.
2. Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.
5. Test point information
   ⊘ :Test point with a no test pin.

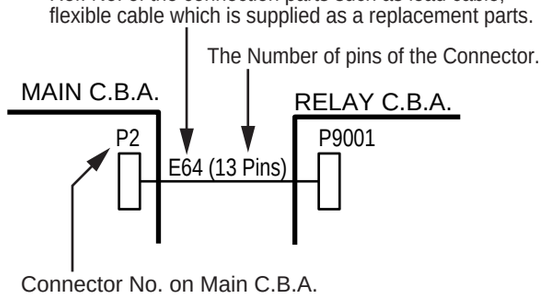
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

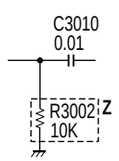
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
MAIN C.B.A.
RELAY C.B.A.
P2
E64 (13 Pins)
P9001
Connector No. on Main C.B.A.

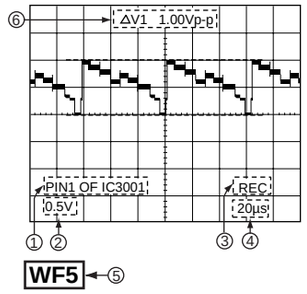
3. Parts enclosed in dashed lines marked “Z” are not used in any models included in this service manual.

Example:



Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Operation Mode of VCR
④ Time/Div
⑤ Waveform Point on Schematic
⑥ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing,
please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

Comparison chart of models & marks

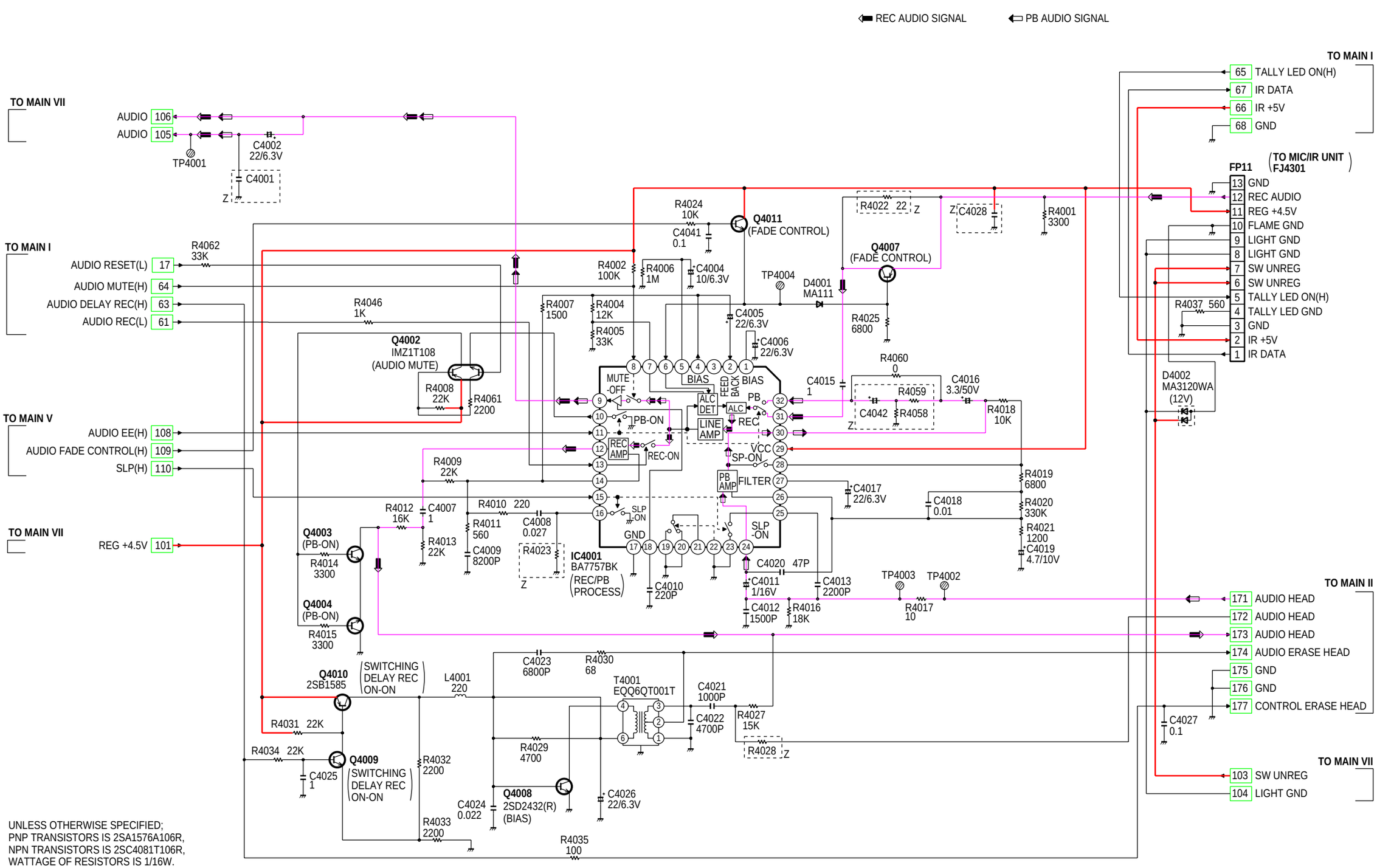
MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

Note:
Refer to item 3 of Schematic Diagram Notes for mark “Z”.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SA1576A106R,
NPN TRANSISTORS IS 2SC4081T106R,
WATTAGE OF RESISTORS IS 1/16W.

LSJB8024

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.5A 63V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.5A 63V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 3A 32V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 3A 32V

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL

TO MAIN II
TRIANGLE WAVE 76

TO MAIN I
LCD PB(L) 90
LCD PANEL (OPEN(H)/CLOSE(L)) 74
SPEAKER ON(H) 72

TO MAIN III
LCD LOAD 10
BRIGHTNESS CONTROL 46

C,D,E,F
TO RELAY C.B.A. P9001 P2
SERIAL CLOCK 1 R1610 100
SERIAL DATA 0 2 R1602 100
LCD LOAD 3 R1603 100
BRIGHTNESS CONTROL 4
REG+3.5V 5
GND 6
GND 7
LUMINANCE 8
R-Y 9
B-Y 10
LCD PANEL (OPEN(H)/CLOSE(L)) 11
UNREG 12
BL+4.5V 13

TO BATTERY CATCHER UNIT B1 B2
GND 1
GND 2
BACKUP VOLTAGE 3
GND 4
BATTERY VOLTAGE 5
AUDIO 6
UNREG 7
UNREG 8
RF +4.7V 9
VIDEO 10
GND 11
SPEAKER ON(H) 12
SP VOLUME CONTROL 13
REG +3.3V 14
AUDIO 15
LCD PB(L) 16
GND 17
GND 18

F1002 1.5A /63V 1.5A 63V C,D,E,F
F1001 3A/32V 3A 32V
D1001 RD12S-T1B (12V)
L1013 100

TO MAIN VI
REG +4.5V 101
SW UNREG 103
LIGHT GND 104
AUDIO 105
AUDIO 106

TO MAIN IV
SP VOLUME CONTROL 107

A,C,D,E
R1101 0.56 118W
R1102 0.56 118W
R1103 22K
R1114 47K
R1111 22K
C1101 2.2
Q1101 2SA2014-TD SWITCHING LIGHT ON-ON
Q1103 2SA1576A106R OVER VOLTAGE PROTECT
Q1105 2SA1576A106R CURRENT DETECTOR
R1104 68
R1105 2200
R1107 5600
R1113 47K
Q1102 2SC4081T106R SWITCHING LIGHT ON-ON
D1102 MA111
R1108 47K
C1103 0.1
R1109 47K
Q1106 2SA1576A106R (LATCH)
R1106 680
C1102 1000P
D1101 RD12S-T1B (12V)
Q1104 2SC4081T106R SWITCHING OVER CURRENT ON
R1110 22K
R1112 22K
R1070 0 B,C,D,E,F

C1001 Z
Q1002 DTA144EU SWITCHING POWER ON-ON
D1002 MA111
R1001 100K Z
Q1001 DTA144EU SWITCHING POWER ON-ON
C1011 4700P
C1020 1
L1001 10
C1021 47/16V
C1022 4.7

Q1012 2SB1073 (SWITCHING)
Q1013 2SB970 (SWITCHING)
R1062 22K
R1063 Z
D1009
C1051 0.1
R1064 10K
R1065 2200
Q1011 IMX1T108 VOLTAGE CONTROL
C1052 Z
R1067 1800
C1053 0.1
R1068 1800
R1069 33

C1002 0.022
C1003 0.022
R1020 100
R1008 2200
R1004 2200
R1006 100K
R1007 100K
R1021 0
C1012 4700P
R1003 1K
C1007 0.1
C1005 0.1
C1006 0.33
R1012 5100
C1008 330P
R1009 1800
C1004 4.7/10V
R1010 1800
R1011 4700
Q1003 DTA114TU (INVERTER)
R1015 10K
R1014 2200
R1013 2200
C1018 0.01
R1028 0
C1019 0.01
R1029 0
R1030 47
C1009 1
R1016 22K
C1010 0.022
R1017 33K
R1019 100K

VDD
V-REF REG
GND
SHORT CIRCUIT PORTECTOR
TRIANGLE WAVE OSC
ERROR AMP
PWM CTL
DRIVE
R1022 27
C1015 220P
C1014 220P
R1026 47
R1027 47
C1016 220P
C1017 220P
IC1001 BA9710KV (PWM CONTROL)

Q1005 2SB1628-T1ZX +4.5V CONTROL
L1002 10
D1004 EP10QY03TE-17
C1023 3.3
C1024 Z
C1025 470P
R1061 2200
C1050 2200P
R1031 6800
R1032 2400
R1033 22

Q1006 MPL1-TL +3.5V CONTROL
L1004 33
C1055 1
L1015 10
L1008 10
C1027 47/4V
C1026 1
C1028 220P
R1034 5600
R1035 2700
R1036 68
C1046 1

Q1007 2SB1424T100P CAMERA POWER CONTROL
T1001 VTPW0003A
D1005 MA111
D1006 MA111
C1029 1
C1031 10/16V
C1036 2200P
C1032 1
L1010 47
L1009 47
R1037 27K
R1038 1500
TP1003
C1030 1
TP1004
C1033 1
TP1005
L1011 47
R1039 2400
R1047 100
D1007 MA111
C1034 1
C1035 1

Q1008 MPL1-TL +4.5V CONTROL
L1003 33
C1037 1
C1038 22/16V
C1049 470P
L1014 4.7
TP1007
C1060 1
R1040 6800
R1041 2200
R1043 150
R1057 0 A,B
Q1020 2SB1073 (SWITCHING)
R1056 22K
R1058 0
C1047 10/16V
R1059 680
Q1021 DTC124EU SWITCHING EVF ON-ON
C1048 Z
C,D,E,F

Q1009 MPL1-TL CAP VM CONTROL
D1008 MA728
C1039 330P
T1002 VTPW0004
R1044 10K
R1046 2200
R1045 330
Q1010 2SA1576A106R CAP VM CONTROL
C1040 1
C1041 10/16V

C1054 1
L1012 10
C1044 1
R1023 22K
Q1014 2SB1073 (SWITCHING)
Q1015 2SC4081T106R SWITCHING CYL VM ON-ON
R1025 680
R1024 2200
R1060 820
L1005 10
C1042 476.3V
L1006 10
C1043 Z
TP1002
L1007 10
C1045 1
TP1001
TP1006

TO MAIN I
82 UNREG
86 BATTERY VOLTAGE
85 SW UNREG
80 BACKUP VOLTAGE
87 LED +4.5V
81 REG +4.5V
91 VOLTAGE DOWN
79 KEY DATA 2
84 POWER ON(L)
89 EVF ON(H)
83 LIGHT ON(H)

TO MAIN II
78 REG +4.5V
77 CAP VM
96 CYL VM
75 CAP SW

TO MAIN V
93 REG +4.5V
100 REG +4.8V
94 VIDEO
97 LUMINANCE
98 R-Y
99 B-Y

TO MAIN IV
21 CAM +4.5V
19 CAM +15V
1 CAM +3.5V
20 CAM -8V

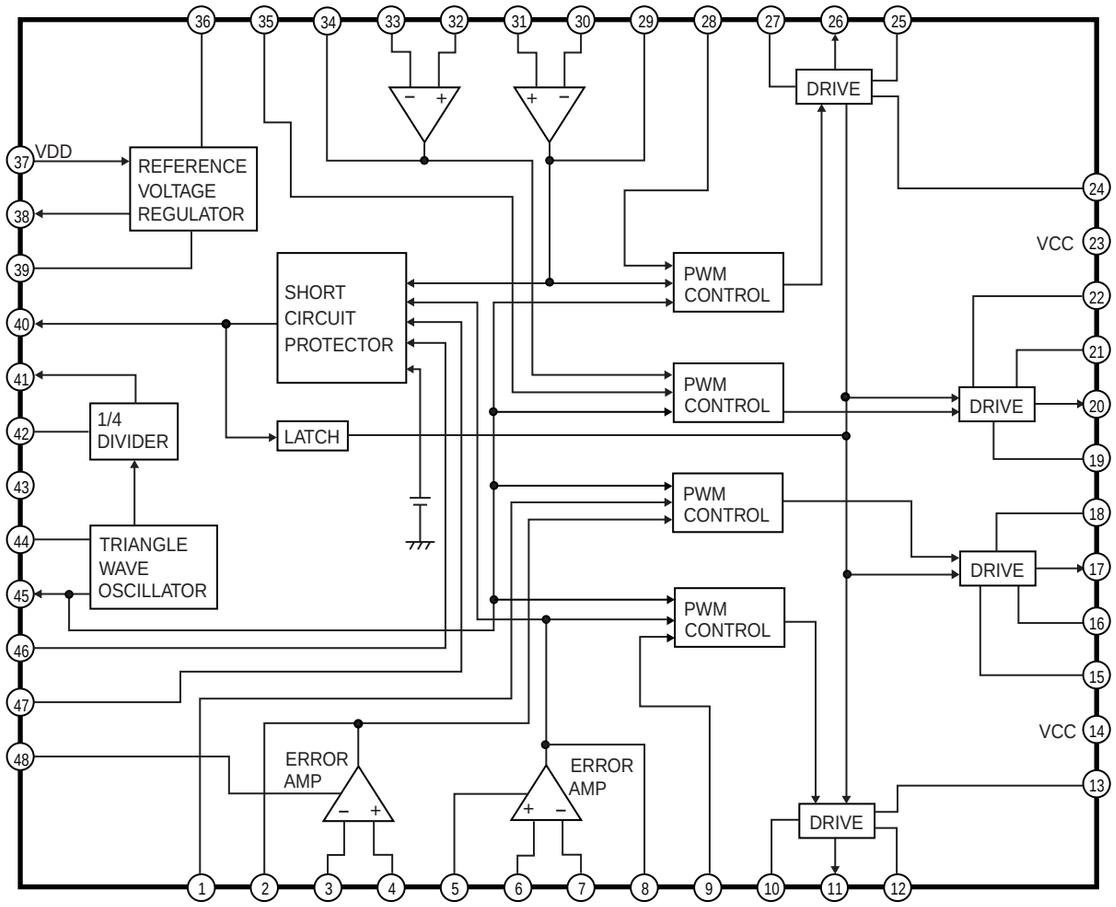
TO MAIN III
12 SERIAL DATA 0
11 SERIAL CLOCK
13 EVF LOAD
24 UNREG
22 AF +8.6V
23 AF +4.5V
88 LED +4.5V

(TO COLOR EVF C.B.A. P901) A
P3 (TO EVF C.B.A. P902) B,C,D,E,F
1 LUMINANCE
2 EVF +4.5V(2)
3 GND
4 KEY DATA 2
5 EVF +4.5V
6 R-Y
7 B-Y
8 GND
9 EVF +15V
10 SERIAL DATA 0
11 SERIAL CLOCK
12 EVF LOAD
R1604 100 A
R1606 100 A
R1605 100 A

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8024

IC1001 PWM CONTROL IC-DETAIL BLOCK DIAGRAM, BA9710KV

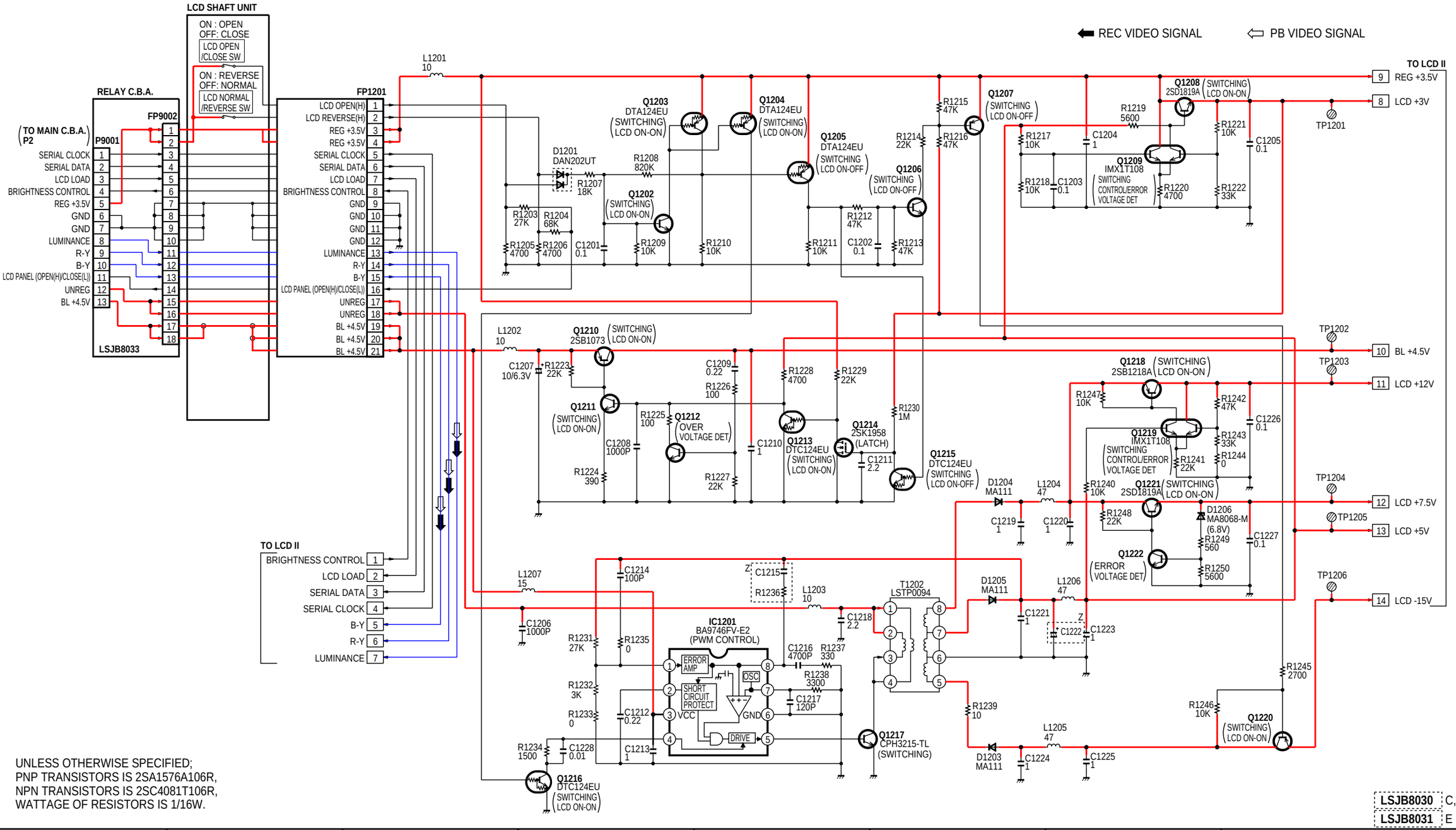


COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
LCD SHAFT UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SA1576A106R,
NPN TRANSISTORS IS 2SC4081T106R,
WATTAGE OF RESISTORS IS 1/16W.

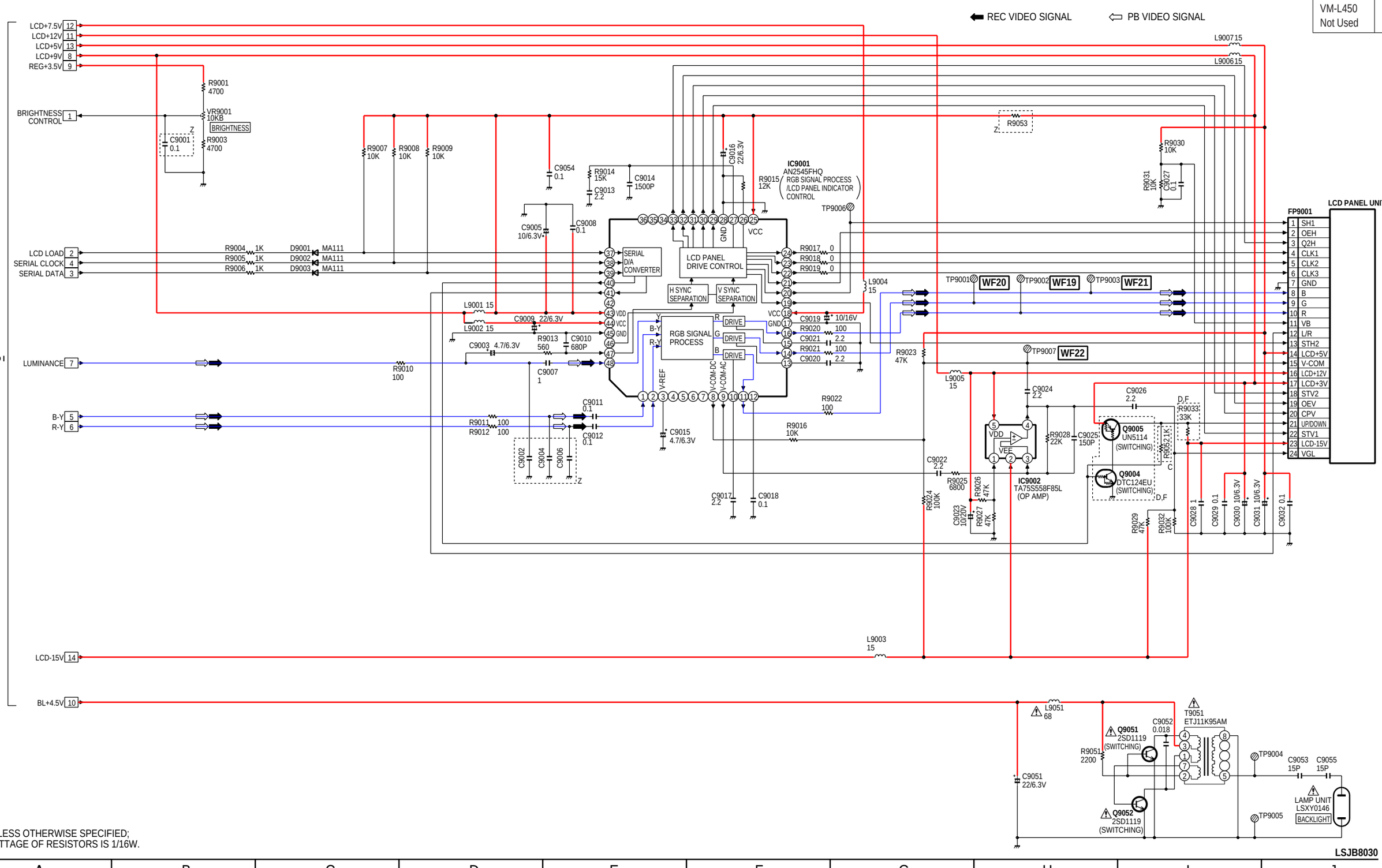
LSJB8030 C,D,F
LSJB8031 E

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8030

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

⬅ REC VIDEO SIGNAL ⇦ PB VIDEO SIGNAL

TO LCD I

LCD+7.5V 12
LCD+12V 11
LCD+5V 13
LCD+9V 8
REG+3.5V 9
BRIGHTNESS CONTROL 1
LCD LOAD 2
SERIAL CLOCK 4
SERIAL DATA 3
LUMINANCE 7
B-Y 5
R-Y 6
LCD-15V 14
BL+4.5V 10

R9001 4700
VR9001 10KB BRIGHTNESS
R9003 4700
C9001 0.1 Z
R9007 10K
R9008 10K
R9009 10K
R9004 1K
R9005 1K
R9006 1K
D9001 MA111
D9002 MA111
D9003 MA111
R9053 100
L9008 15
C9044 0.1
R9014 15K
C9013 2.2
C9014 1500P
C9016 22/6.3V
C9005 10/6.3V
C9008 0.1
R9015 12K
IC9001
AN2545FHQ
RGB SIGNAL PROCESS
/LCD PANEL INDICATOR
CONTROL
TP9006
SERIAL D/A CONVERTER
LCD PANEL DRIVE CONTROL
H SYNC SEPARATION
V SYNC SEPARATION
RGB SIGNAL PROCESS
DRIVE
R9017 0
R9018 0
R9019 0
L9001 15
L9002 15
C9009 22/6.3V
C9003 22/6.3V
R9013 560
C9010 680P
R9054 0
C9048 0.1
C9049 0.1 Z
C9007 0.1
C9011 0.1
R9011 100
R9012 100
C9012 0.1
C9015 4.7/6.3V
C9019 10/16V
R9020 100
C9021 2.2
R9021 100
C9020 2.2
R9022 100
R9016 10K
C9017 2.2
C9018 0.1
C9002
C9004
C9006
R9030 10K
R9031 10K
C9027 0.1
R9044 Z
L9004 15
TP9001 WF20
TP9002 WF19
TP9003 WF21
TP9007 WF22
R9023 30K
L9005 15
C9024 2.2
C9026 2.2
R9033 33K
R9028 22K
C9025 150P
Q9002 UN5114 (SWITCHING)
R9043
Q9001 DTC124EU (SWITCHING)
C9022 2.2
R9025 6800
R9024 100K
C9023 10/20V
R9026 47K
R9027 47K
IC9002 TA75S558F85L (OP AMP)
R9029 47K
R9032 100K
C9028 1
C9029 0.1
C9030 10/6.3V
C9031 10/6.3V
C9032 0.1
L900715
L900615

FP9001 LCD PANEL UNIT

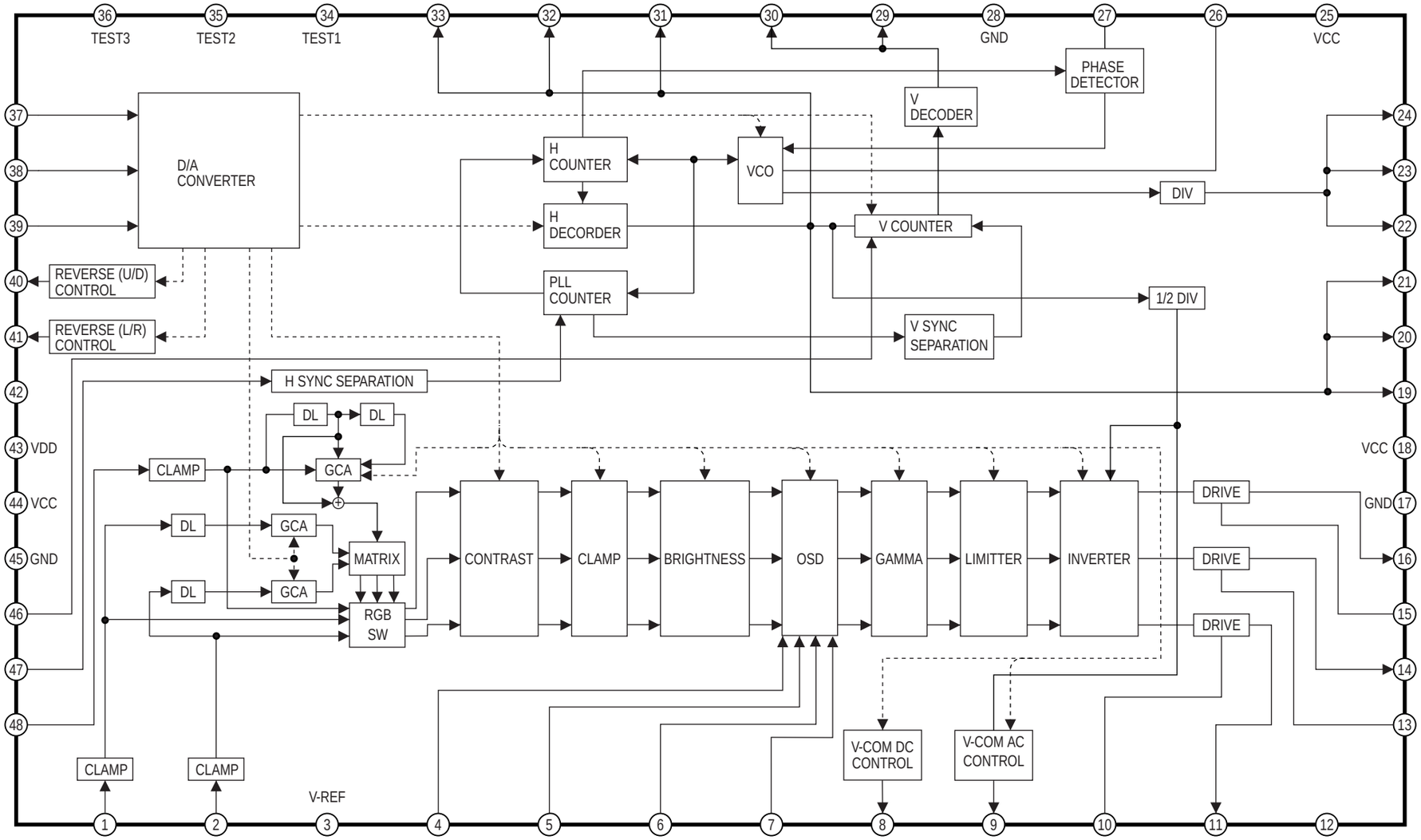
1	SH1
2	OEH
3	Q2H
4	CLK1
5	CLK2
6	CLK3
7	GND
8	B
9	G
10	R
11	VB
12	L/R
13	STH2
14	LCD+5V
15	V-COM
16	LCD+12V
17	LCD+3V
18	STV2
19	OEV
20	CPV
21	UP/DOWN
22	STV1
23	LCD-15V
24	VGL

C9039 0.01
C9041 1
C9034 10/6.3V
R9034 6800
C9035 1
R9038 470
R9037 150K
Q9003 2SD1819A (BUFFER)
R9035 3300
R9036 680P
C9036 680P
C9033 22/6.3V
X9001 LSSX0031
R9039 10K
R9040 270
C9037 1500P
C9038 27P
C9040 0.027
R9041 3300
IC9003
M52684BFP
(V/H SYNC SEPARATION)
H VCO
AFC
HORIZONTAL COUNT DOWN
V/H-SYNC SEPARATION
V-SYNC SEPARATION
C9043 0.01
C9042 1000P
R9042 47K
Z
R9052 1K
R9049 1K
R9050 3000
R9051 3000
C9047 0.1
R9046 2200
C9046 1000P
IC9004
TC7W04F
(INVERTER)
R9045 0
R9048 1K
R9047
C9045
TP9008
L9003 15
L9101 68
T9101 LSLT0030
Q9102 2SD1119 (SWITCHING)
C9102 0.039
R9101 1K
C9101 22/6.3V
Q9101 2SD1119 (SWITCHING)
TP9004
TP9005
C9103 10P
R9102 0
LAMP UNIT LSXY0157
BACKLIGHT

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8031

IC9001 RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL IC-DETAIL BLOCK DIAGARM, AN2545FHQ

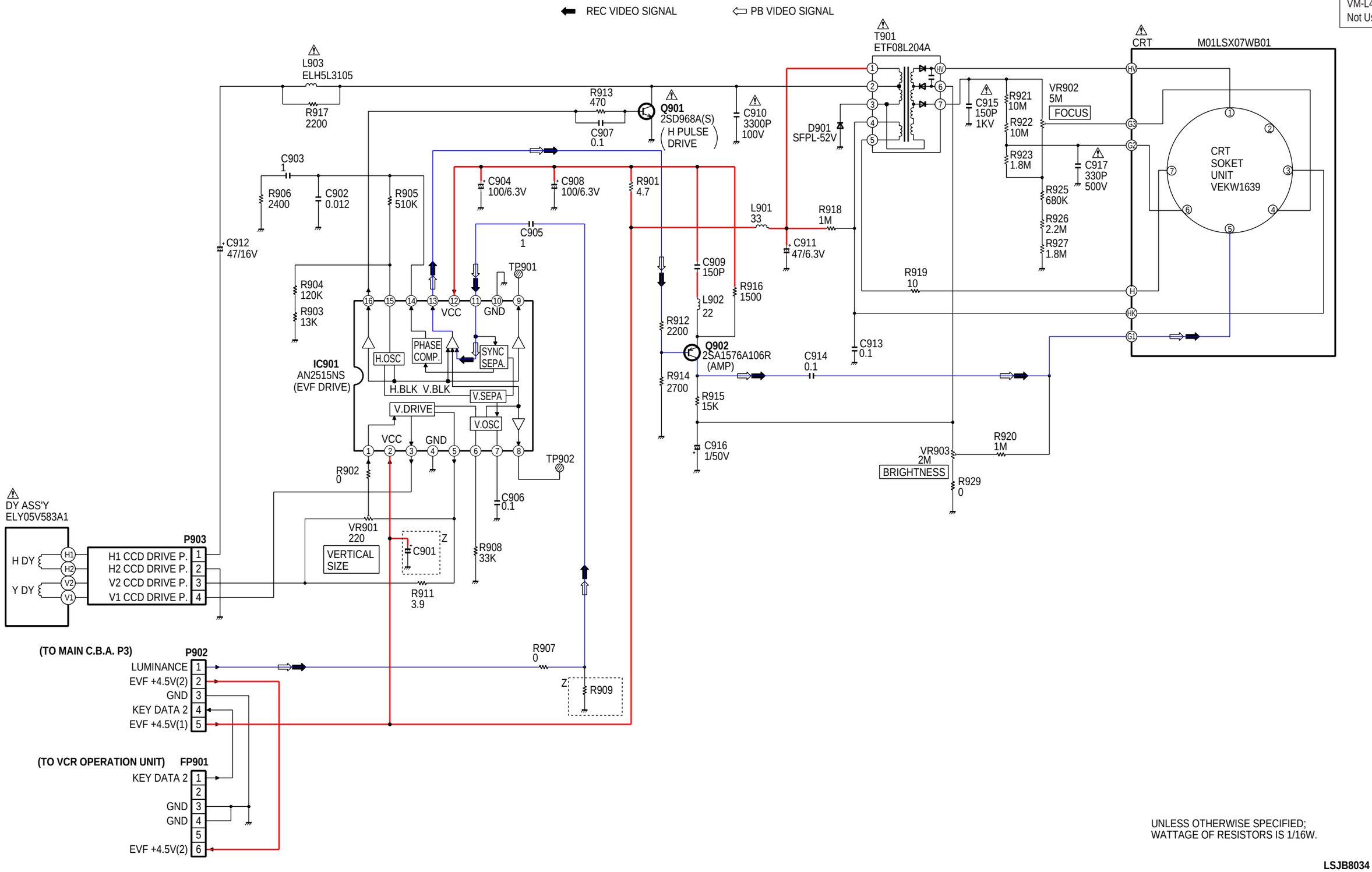


COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8034

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

TO VCR OPERATION UNIT
FP901
KEY DATA 2 1
2
GND 3
GND 4
5
EVF +4.5V(2) 6

TO MAIN C.B.A. P3
P901
LUMINANCE 1
EVF +4.5V(2) 2
GND 3
KEY DATA 2 4
EVF +4.5V 5
R-Y 6
B-Y 7
GND 8
EVF +15V 9
SERIAL DATA 0 10
SERIAL CLOCK 11
EVF LOAD 12

Q903 2SC4081T106R (SWITCHING POWER ON-ON)
Q902 2SC4081T106R (OVER VOLTAGE DET)
Q905 2SA1037K146R (SWITCHING POWER ON-ON)
Q904 IMX1T108 (SWITCHING CONTROL/OVER VOLTAGE DET)

R901 2200
C935 1
C936 0.01
D901 MA8033-H (3.3V)
R905 220
R906 1K
TP905
C934 1
C933 0.1
R928 18K
R931 3900
R935 0
R929 11K
R930 10K
C931 0.1
C907 22/6.3V Z
C908 0.1
C916 1500P
R911 15K
C915 2.2
R912 11K
C920 0.1
C937 0.1
L902 15
L906 15 Z
R902 1K
R903 1K
R904 1K
R938 0
C912 22/6.3V
R907 0
C905 4.7/25V
R910 560
C904 Z
C910 1000P
C911 1
R908 0
C913 0.1
C917 4.7/6.3V
C918 2.2
R937 Z
C919 0.1
R909 0
C906
C909 Z
C914 0.1
L903 10
C922 47/16V
C925 0.1
R936 10K

IC901 AN2536FHQ (EVF RGB SIGNAL PROCESS)
D/A CONVERTER
EVF LCD PANEL DRIVE CONTROL
RGB SIGNAL PROCESS
V-COM CONTROL
GND
VCC
R
G
B
VDD

R913 0
R915 0
C921 22/16V Z
L904 15 Z
R917 680
R916 1.2K
C924 2.2
C923 2.2
R939 0
R918 100
TP903
TP904
TP906
TP901
TP902
R919 0
L905 15
R920 27K
R921 4700
R922 22K
C927 0.1
C926 2.2

FP902
16 V-COM
15 G
14 R
13 B
12 BLK
11 HCK1
10 HCK2
9 HST
8 RGT
7 DWN
6 EN
5 STB
4 VCK
3 VST
2 VSS
1 VDD

EVF LCD PANEL UNIT

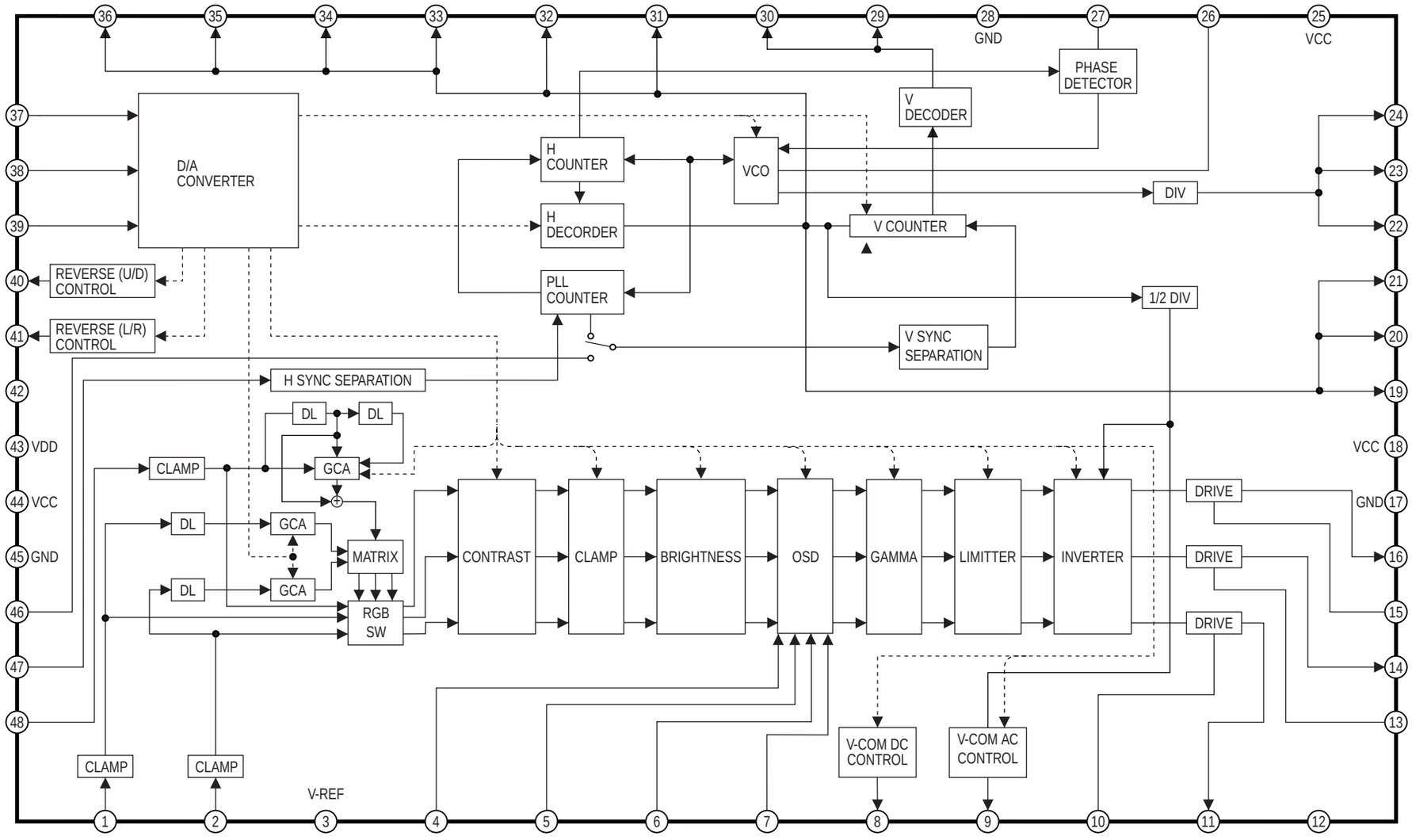
B902
1 GND
2 BL +4.5V
3 GND
4 BL +4.5V
5 BACKLIGHT PULSE
6

COLOR EVF B C.B.A.
B901
L901 100
C901 Z
C903 10
C902 Z
T901 ETJ09K30AM
PL901 VLLW0010 BACKLIGHT
Q901 2SK1299STL (BACKLIGHT DRIVE)
VJBW1671

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8035

IC901 RGB SIGNAL PROCESS/LCD PANEL INDICATOR CONTROL IC-DETAIL BLOCK DIAGARM, AN2536FHQ



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

***1** NOTE
TO DEFEAT THE SAFETY FUNCTION, CONNECT A DIODE BETWEEN TP6010 AND TP6012, OR SELECT THE H. SAFETY DEFEAT IN SERVICE MODE. REFER TO NOTE1 OF "EXTENSION CABLES FOR SERVICE" IN SERVICE NOTES SECTION FOR MORE INFORMATION.

IC6001 KEY MATRIX CHART

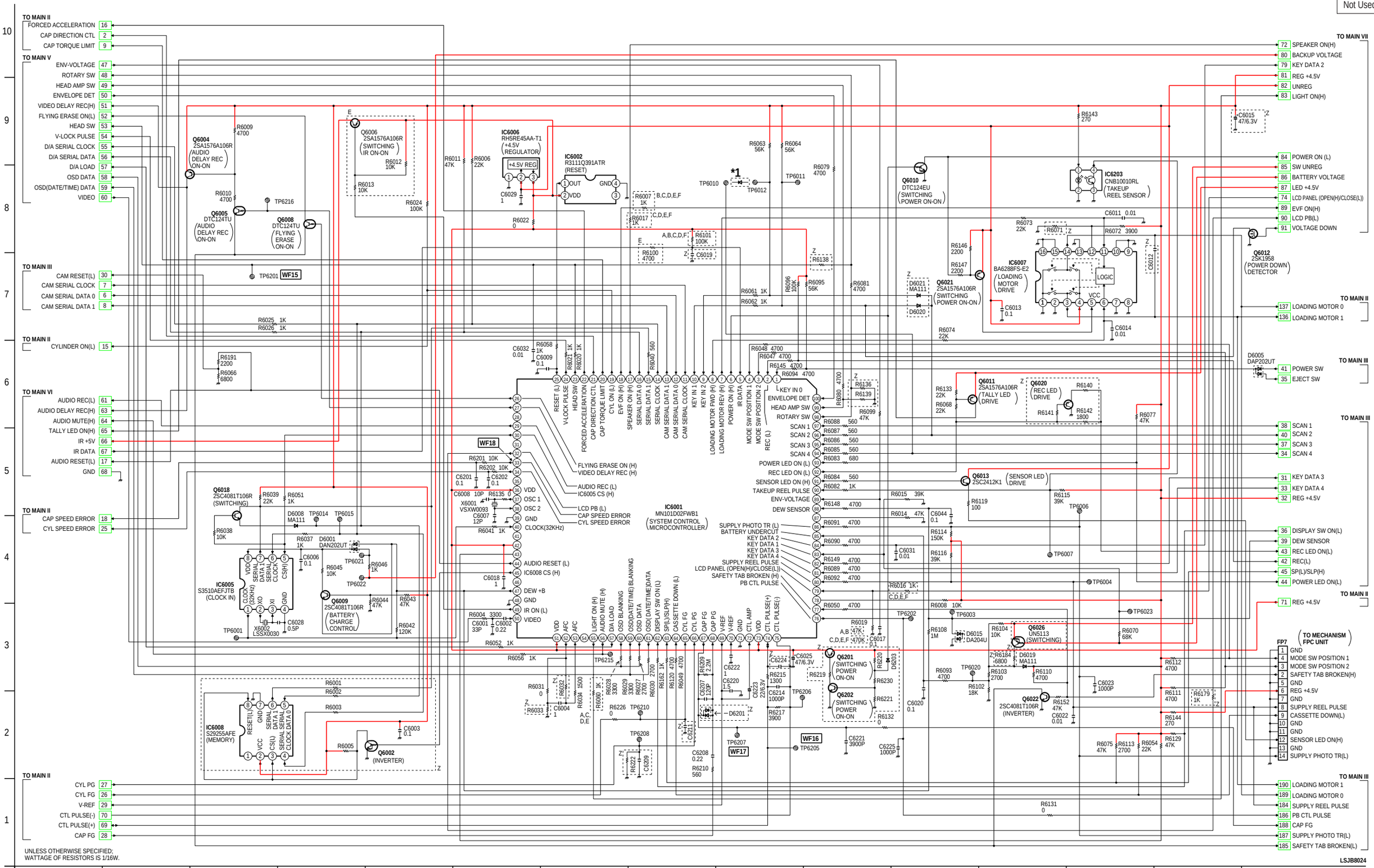
KEY IN	SCAN			
	SCAN 1 (PIN 97)	SCAN 2 (PIN 96)	SCAN 3 (PIN 95)	SCAN 4 (PIN 94)
KEY IN 0 (PIN 1)	POWER			EJECT
	OFF	CAMERA	VCR	

IC6001 KEY MATRIX CHART

VOLTAGE	0~0.18V	0.72~1.08V	1.62~1.98V	2.52~2.88V	3.42~3.78V	4.32~4.50V
KEY DATA 2 (PIN 84)	STOP	PLAY	FF/SEARCH	REW/ SEARCH	STILL	------
KEY DATA 3 (PIN 82)	LIGHT (ON)	LIGHT (AUTO)	------	------	------	LIGHT (OFF)
KEY DATA 4 (PIN 81)	UP	DOWN	TITLE	------	MENU	------

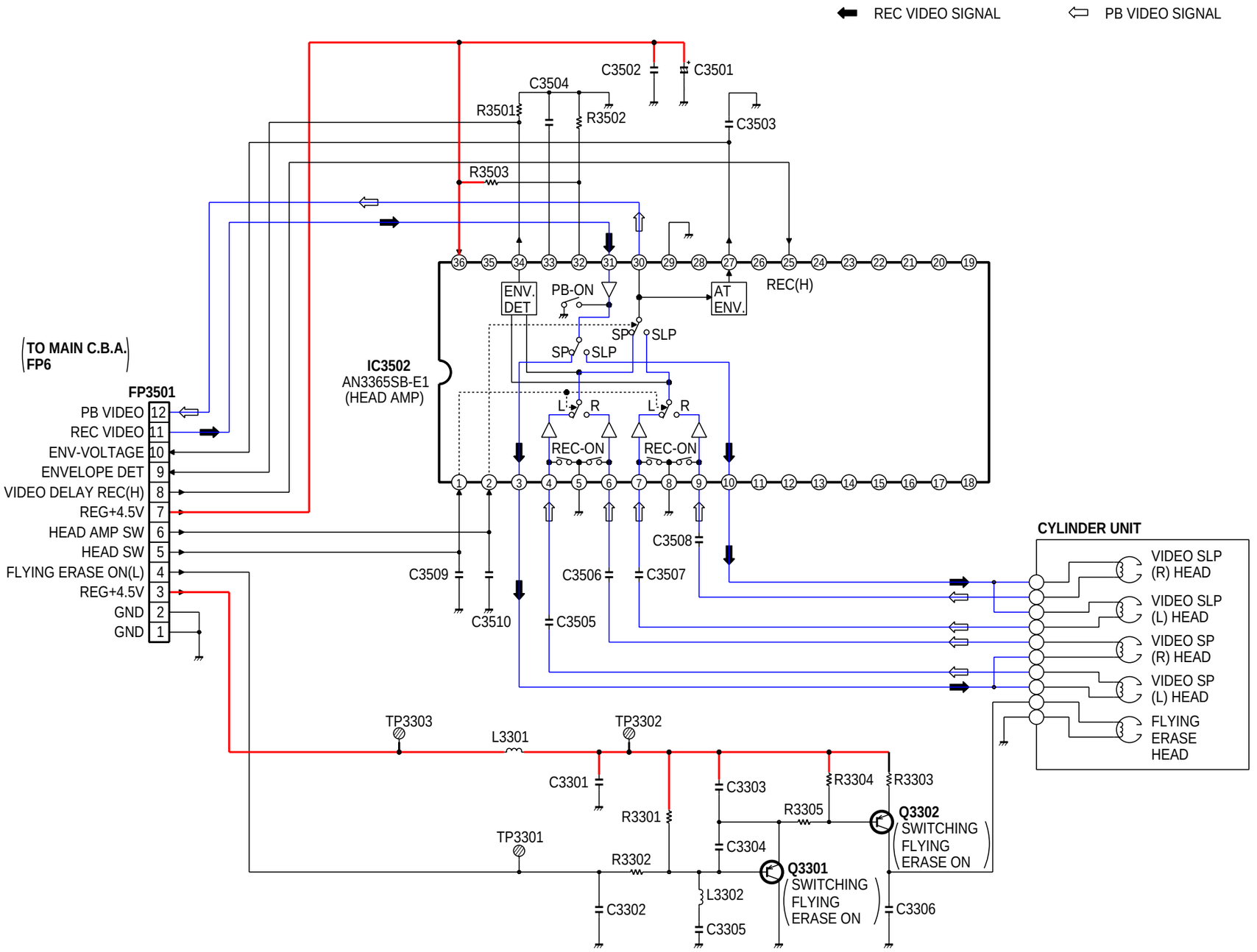
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z


TO MAIN II
FORCED ACCELERATION 16
CAP DIRECTION CTL 2
CAP TORQUE LIMIT 9
TO MAIN V
ENV-VOLTAGE 47
ROTARY SW 48
HEAD AMP SW 49
ENVELOPE DET 50
VIDEO DELAY REC(H) 51
FLYING ERASE ON(L) 52
HEAD SW 53
V-LOCK PULSE 54
D/A SERIAL CLOCK 55
D/A SERIAL DATA 56
D/A LOAD 57
OSD DATA 58
OSD(DATE/TIME) DATA 59
VIDEO 60
TO MAIN III
CAM RESET(L) 30
CAM SERIAL CLOCK 7
CAM SERIAL DATA 0 6
CAM SERIAL DATA 1 8
TO MAIN II
CYLINDER ON(L) 15
TO MAIN VI
AUDIO REC(L) 61
AUDIO DELAY REC(H) 63
AUDIO MUTE(H) 64
TALLY LED ON(H) 65
IR +5V 66
IR DATA 67
AUDIO RESET(L) 17
GND 68
TO MAIN II
CAP SPEED ERROR 18
CYL SPEED ERROR 25
TO MAIN II
CYL PG 27
CYL FG 26
V-REF 29
CTL PULSE(-) 70
CTL PULSE(+) 69
CAP FG 28
TO MAIN VII
72 SPEAKER ON(H)
80 BACKUP VOLTAGE
79 KEY DATA 2
81 REG +4.5V
82 UNREG
83 LIGHT ON(H)
84 POWER ON (L)
85 SW UNREG
86 BATTERY VOLTAGE
87 LED +4.5V
74 LCD PANEL (OPEN(H)/CLOSE(L))
89 EVF ON(H)
90 LCD PB(L)
91 VOLTAGE DOWN
TO MAIN II
137 LOADING MOTOR 0
136 LOADING MOTOR 1
TO MAIN III
41 POWER SW
35 EJECT SW
TO MAIN III
38 SCAN 1
40 SCAN 2
37 SCAN 3
34 SCAN 4
31 KEY DATA 3
33 KEY DATA 4
32 REG +4.5V
36 DISPLAY SW ON(L)
39 DEW SENSOR
43 REC LED ON(L)
42 REC(L)
45 SP(L)/SLP(H)
44 POWER LED ON(L)
TO MAIN II
71 REG +4.5V
TO MAIN III
190 LOADING MOTOR 1
189 LOADING MOTOR 0
184 SUPPLY REEL PULSE
186 PB CTL PULSE
188 CAP FG
187 SUPPLY PHOTO TR(L)
185 SAFETY TAB BROKEN(L)
FP7 (TO MECHANISM FPC UNIT)
1 GND
4 MODE SW POSITION 1
3 MODE SW POSITION 2
2 SAFETY TAB BROKEN(H)
5 GND
6 REG +4.5V
7 GND
8 SUPPLY REEL PULSE
9 CASSETTE DOWN(L)
10 GND
11 GND
12 SENSOR LED ON(H)
13 GND
14 SUPPLY PHOTO TR(L)
Q6004 2SA1576A106R (AUDIO DELAY REC ON-OFF)
Q6005 DTC124TU (AUDIO DELAY REC ON-OFF)
Q6008 DTC124TU (FLYING ERASE ON-OFF)
Q6006 2SA1576A106R (SWITCHING IR ON-ON)
IC6006 RH5RE45AA-T1 (+4.5V REGULATOR)
IC6002 R3111Q391ATR (RESET)
Q6010 DTC124EU (SWITCHING POWER ON-ON)
IC6203 CNB10010RL (TAKEUP REEL SENSOR)
IC6007 BA6288FS-E2 (LOADING MOTOR DRIVE)
Q6021 2SA1576A106R (SWITCHING POWER ON-ON)
Q6012 2SK1958 (POWER DOWN DETECTOR)
Q6011 2SA1576A106R (TALLY LED DRIVE)
Q6020 (REC LED DRIVE)
Q6013 2SC2412K1 (SENSOR LED DRIVE)
Q6018 2SC4081T106R (SWITCHING)
IC6005 S3510AEFJTB (CLOCK IN)
Q6009 2SC4081T106R (BATTERY CHARGE CONTROL)
IC6008 S29255AFE (MEMORY)
Q6002 (INVERTER)
Q6022 2SC4081T106R (INVERTER)
IC6001 MN101D02FWB1 (SYSTEM CONTROL MICROCONTROLLER)
Q6201 (SWITCHING POWER ON-ON)
Q6202 (SWITCHING POWER ON-ON)
Q6026 UN5113 (SWITCHING)
WF15
WF16
WF17
WF18
TP6201
TP6205
TP6206
TP6207
TP6208
TP6210
TP6215
TP6216
TP6001
TP6004
TP6007
TP6023
TP6202
TP6003
TP6020
TP6021
TP6022
TP6006
TP6010
TP6011
TP6012
D6021 MA111
D6020
D6005 DAP202UT
D6015 DA204U
D6019 MA111
D6001 DAN202UT
D6008 MA111
D6014
D6023
D6201
D6202
D6203
D6204
D6205
D6206
D6207
D6208
D6209
D6210
D6211
D6212
D6213
D6214
D6215
D6216
D6217
D6218
D6219
D6220
D6221
D6222
D6223
D6224
D6225
D6226
D6227
D6228
D6229
D6230
D6231
D6232
D6233
D6234
D6235
D6236
D6237
D6238
D6239
D6240

NOTE:
HEAD AMP C.B.A. WHICH IS LOCATED ON THE LOWER CYLINDER IS SUPPLIED AS A CYLINDER UNIT ONLY. HOWEVER, IC3501 (AN3365SB-E1) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

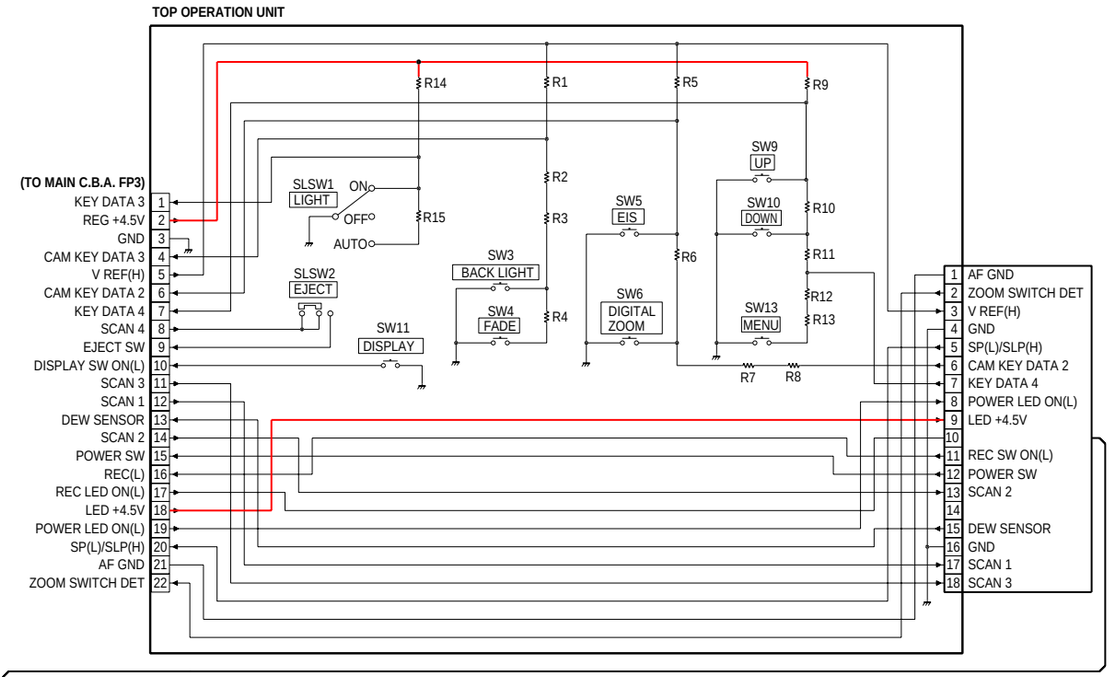


NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

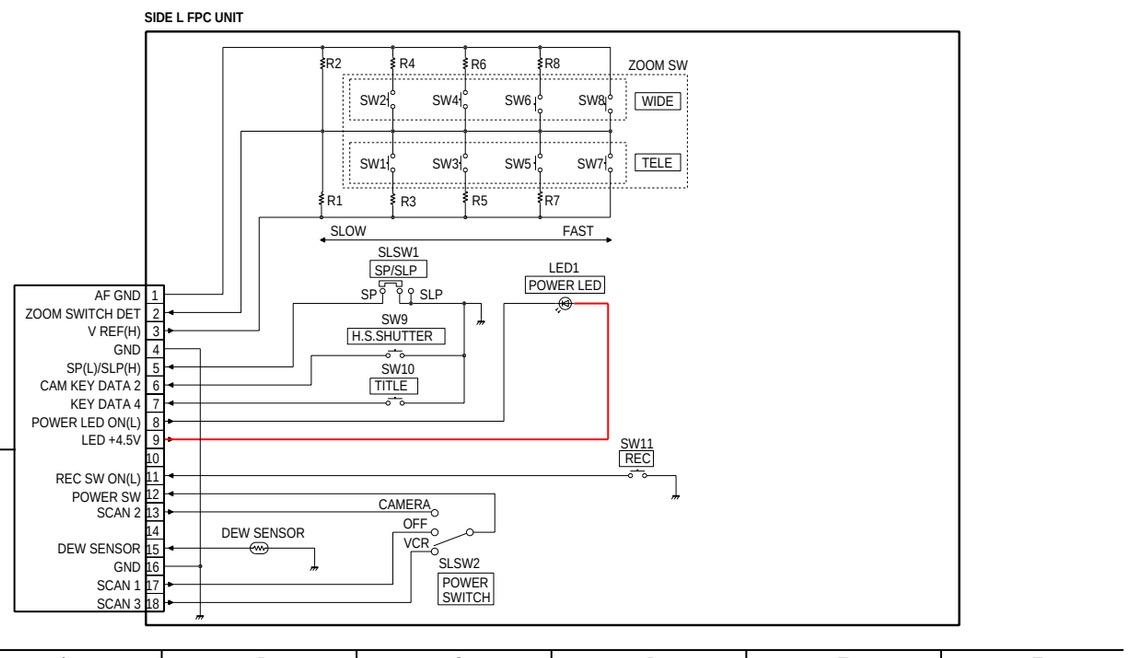
TOP OPERATION UNIT/SIDE L FPC UNIT

"FOR REFERENCE ONLY"

NOTE:
TOP OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



NOTE:
SIDE L FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



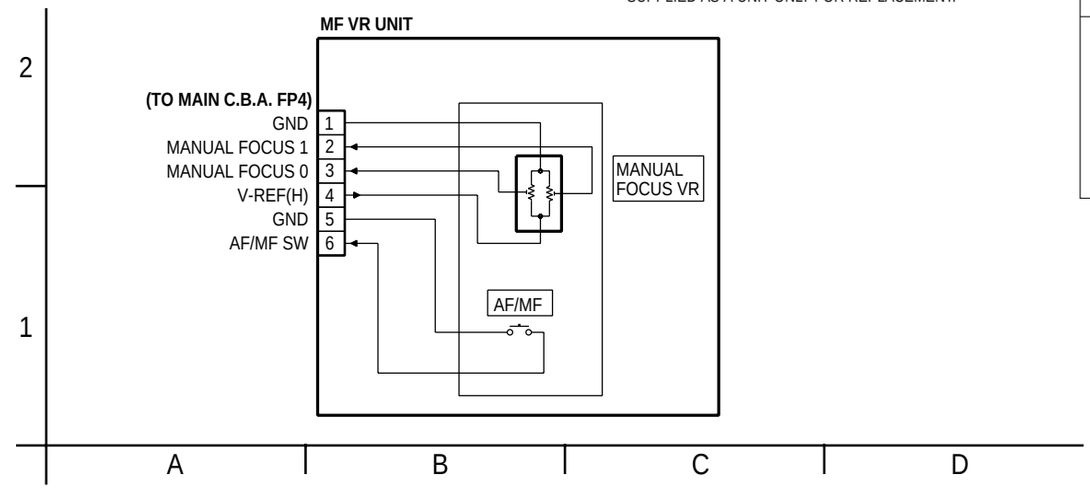
MF VR UNIT

"FOR REFERENCE ONLY"

NOTE:
MF VR UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

COMPARISON CHART
OF MODELS & MARKS

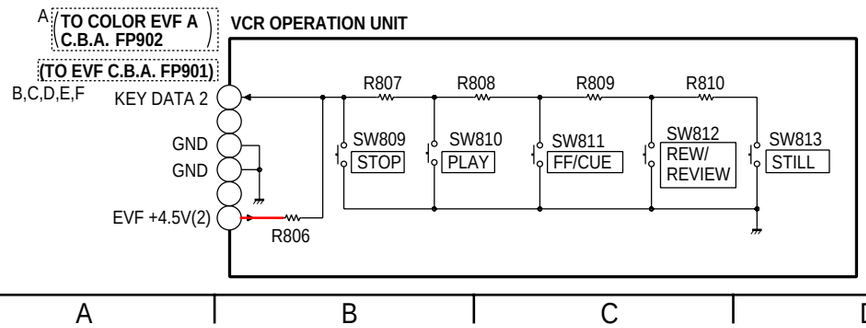
MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



VCR OPERATION UNIT

"FOR REFERENCE ONLY"

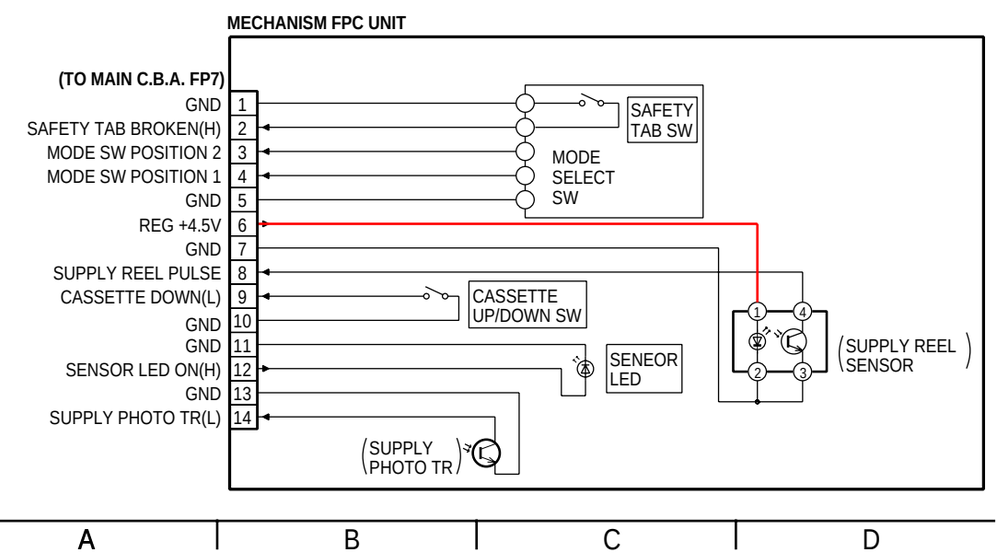
NOTE:
VCR OPERATION UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



MECHANISM FPC UNIT

"FOR REFERENCE ONLY"

NOTE:
MECHANISM FPC UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



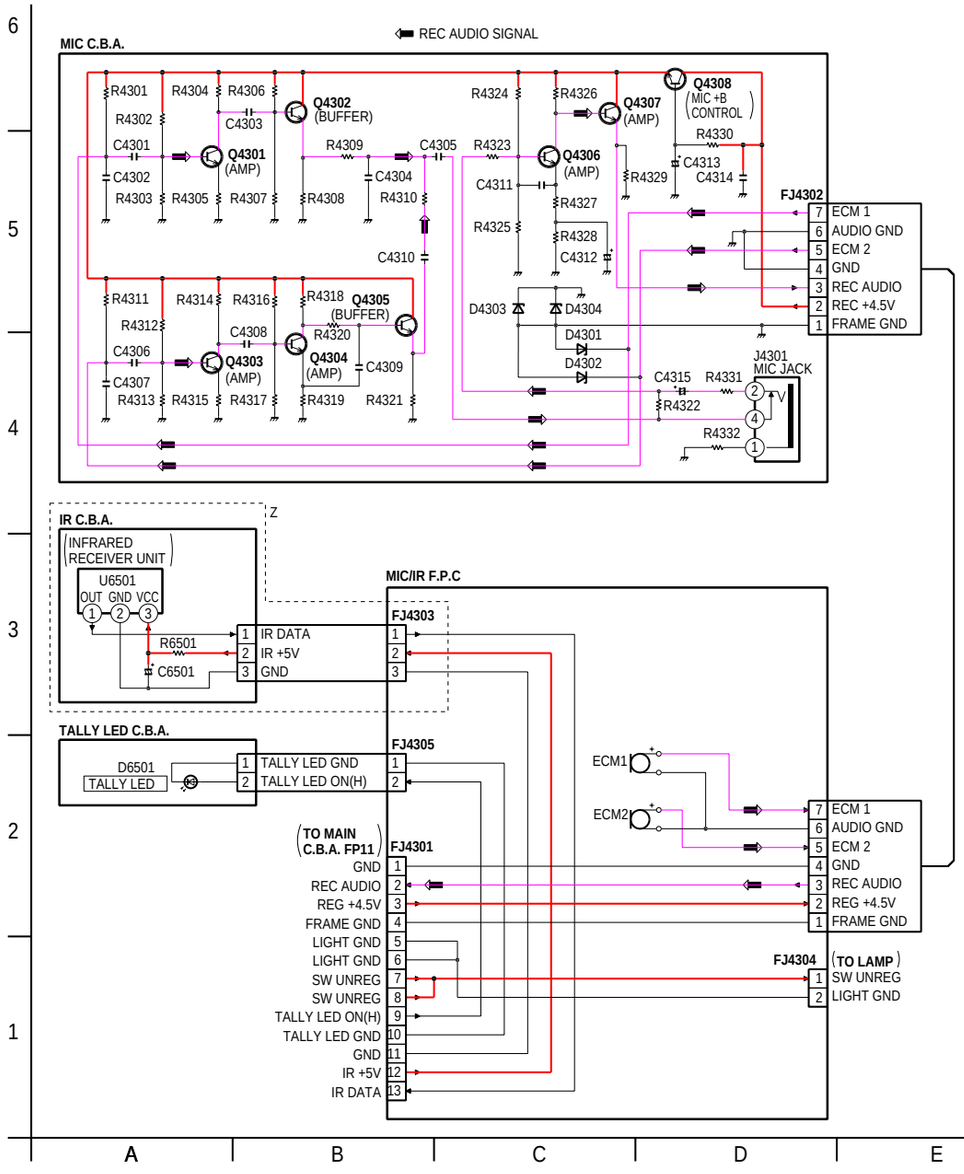
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

MIC/IR UNIT

"FOR REFERENCE ONLY"

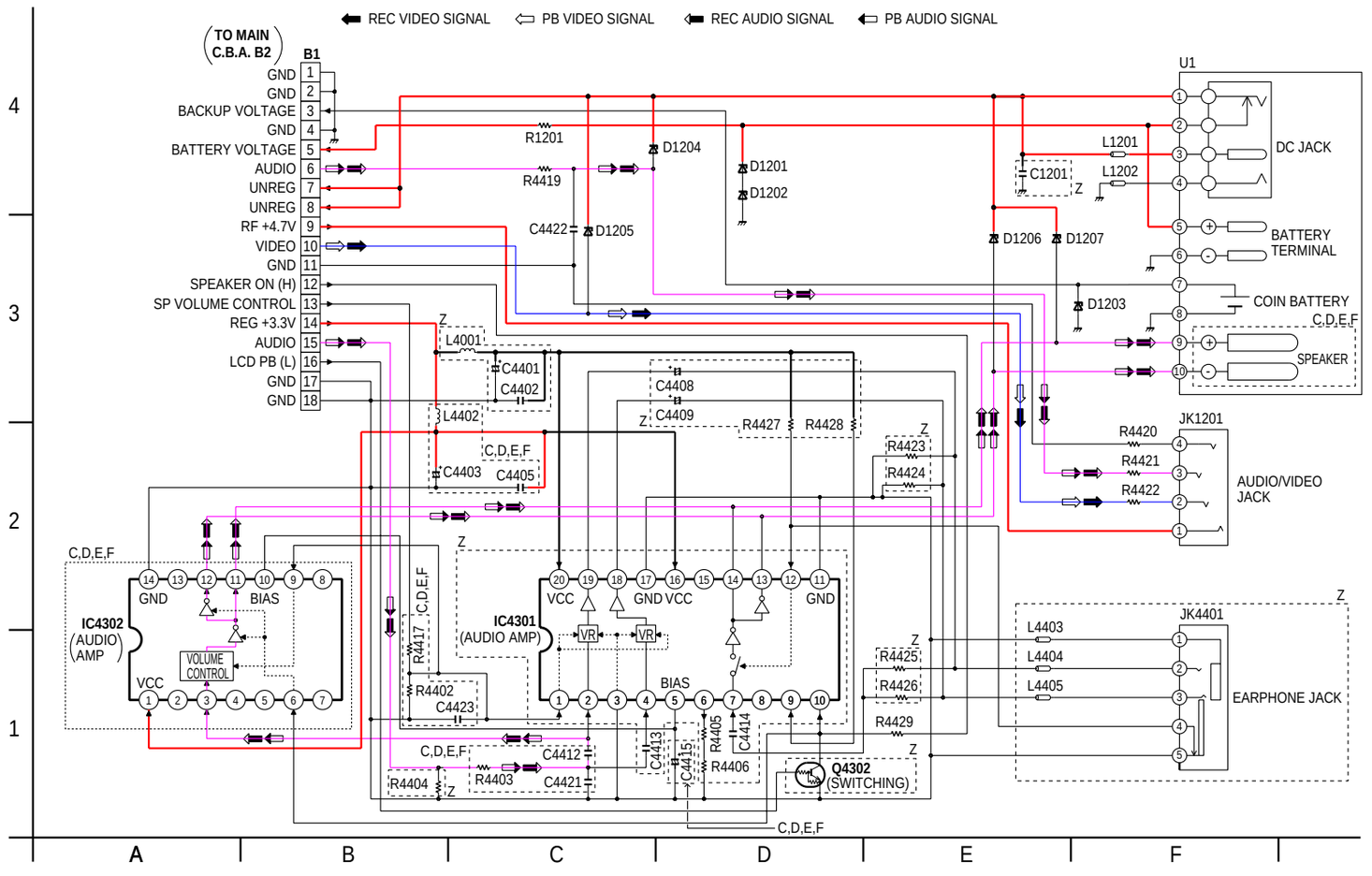
NOTE:
MIC/IR UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



BATTERY CATCHER UNIT

"FOR REFERENCE ONLY"

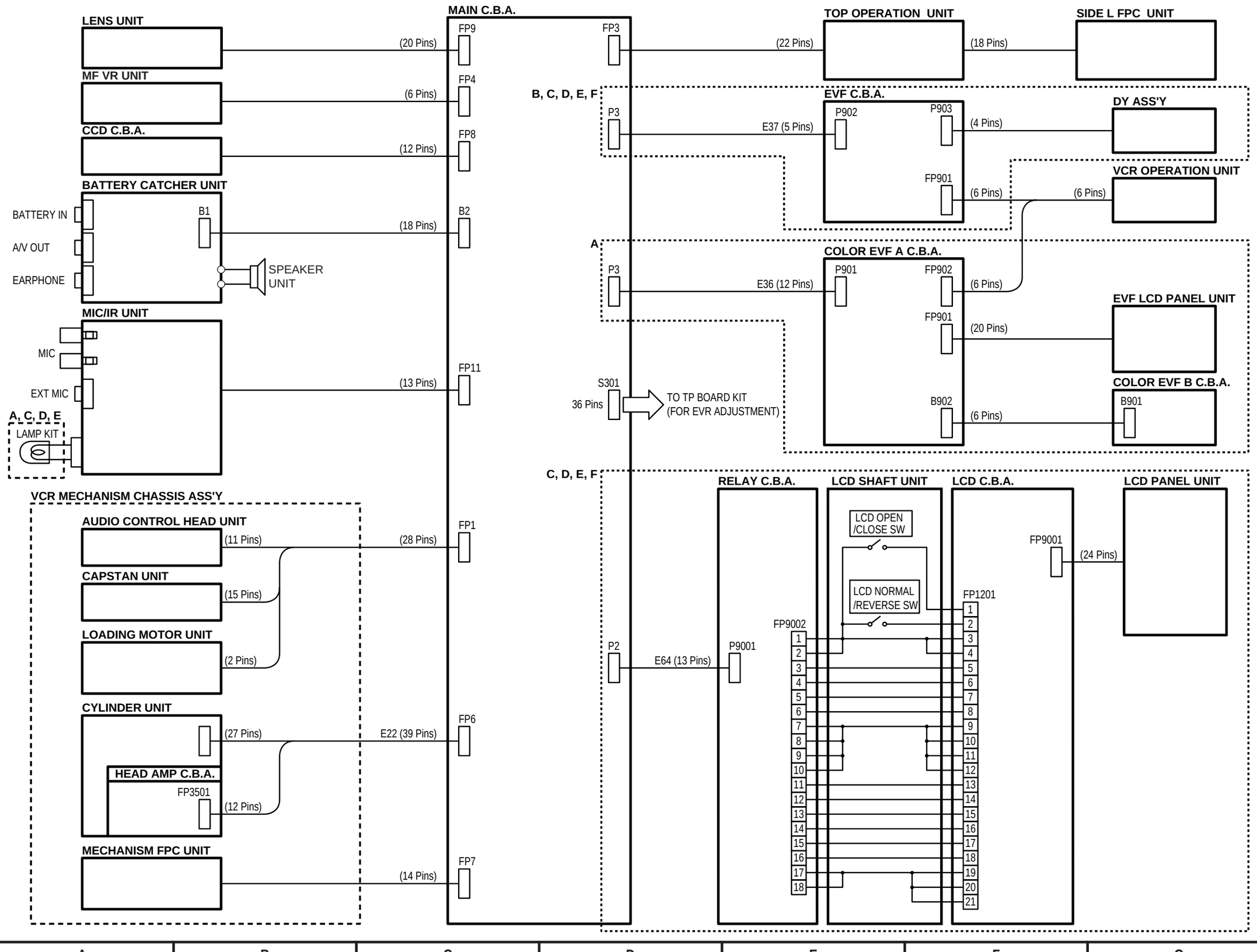
NOTE:
BATTERY CATCHER UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

REC AUDIO SIGNAL
PB AUDIO SIGNAL

TO MAIN I
FORCED ACCELERATION 16
CAP FG 28
CTL PULSE(-) 70
CTL PULSE(+) 69

TO MAIN VI
AUDIO HEAD 171
AUDIO HEAD 172
AUDIO HEAD 173
AUDIO ERASE HEAD 174
GND 175
GND 176
CONTROL ERASE HEAD 177

TO AUDIO CONTROL HEAD UNIT /CAPSTAN UNIT — FP1
GND 1
CONTROL HEAD(-) 2
CONTROL HEAD(+) 3
CONTROL ERASE HEAD 4
GND 5
GND 6
AUDIO ERASE HEAD 7
AUDIO HEAD 8
AUDIO HEAD 9
AUDIO HEAD 10
GND 11
GND 12
VMR 13
CAP FG(+) 14
15
VH- 16
H1+ 17
H1- 18
H2+ 19
H2- 20
H3+ 21
H3- 22
VH+ 23
MAIN COIL 2 24
MAIN COIL 3 25
MAIN COIL 1 26
LOADING MOTOR 0 27
LOADING MOTOR 1 28

TO MAIN I
LOADING MOTOR 1 136
LOADING MOTOR 0 137

TO MAIN VII
CAP SW 75
TRIANGLE WAVE 76
CAP VM 77
REG +4.5V 78

TP6220
TP6212
R2001 1500
R2002 Z
R2003 100
R2004 3300
R2031 100
R2032 10K
C2001 0.1
C2002 0.1
C2003 0.1
C2004 Z
C2005 Z
C2006 Z
C2007 22/6.3V
C2008 0.033
C2010 0.068
R2011 22K
R2013 3300
C2040 10/16V

IC2002
UN224-TX
CAP MOTOR DRIVE

IC2003
UN224-TX
CYL MOTOR DRIVE

IC2001
AN3897FH
CYL/CAP MOTOR DRIVE CONTROL

DRIVE
DRIVE CTL
LOGIC
TORQUE SATURATION DETECT
DIRECTION SWITCH
TORQUE DIRECTION CONTROL
TORQUE COMMAND
CAP VM
CYL VM

R2008 0.33 1/8W
C2011 0.33
C2012 0.047
C2013 0.047
R2010 1K
R2012 180K
C2043 Z
R2046
C2031 0.1
C2030 0.1
C2032 0.1
C2042 Z
R2045
C2041 Z
R2044
C2024 1
C2022 0.047
R2022 220
R2023 0.33 1/8W
C2025 0.01
R2037 Z
C2021 0.047
R2041 Z
C2016 330P
R2016 680K
R2021 10K
C2023 0.1
C2015 1500P
R2014 680K
R2015 6800
C2017 1
C2039 Z
R2036 Z
R2029 390
R2030 470
R2026 82
R2025 100
R2028 390
C2027 Z
C2028 Z
C2029 Z
R2027 470

TO MAIN I
2 CAP DIRECTION CTL
9 CAP TORQUE LIMIT
71 REG +4.5V
29 V-REF

TO MAIN V
153 CYL FG(+)
154 CYL FG(-)
155 CYL PG
156 MAIN COIL 2
157 VH-
158 VH+
159 VH+
160 VH+
161 VH+
162 H1-
163 H1+
164 H2-
165 H2+
166 MAIN COIL 3
167 H3-
168 VH-
169 H3+
170 MAIN COIL 1

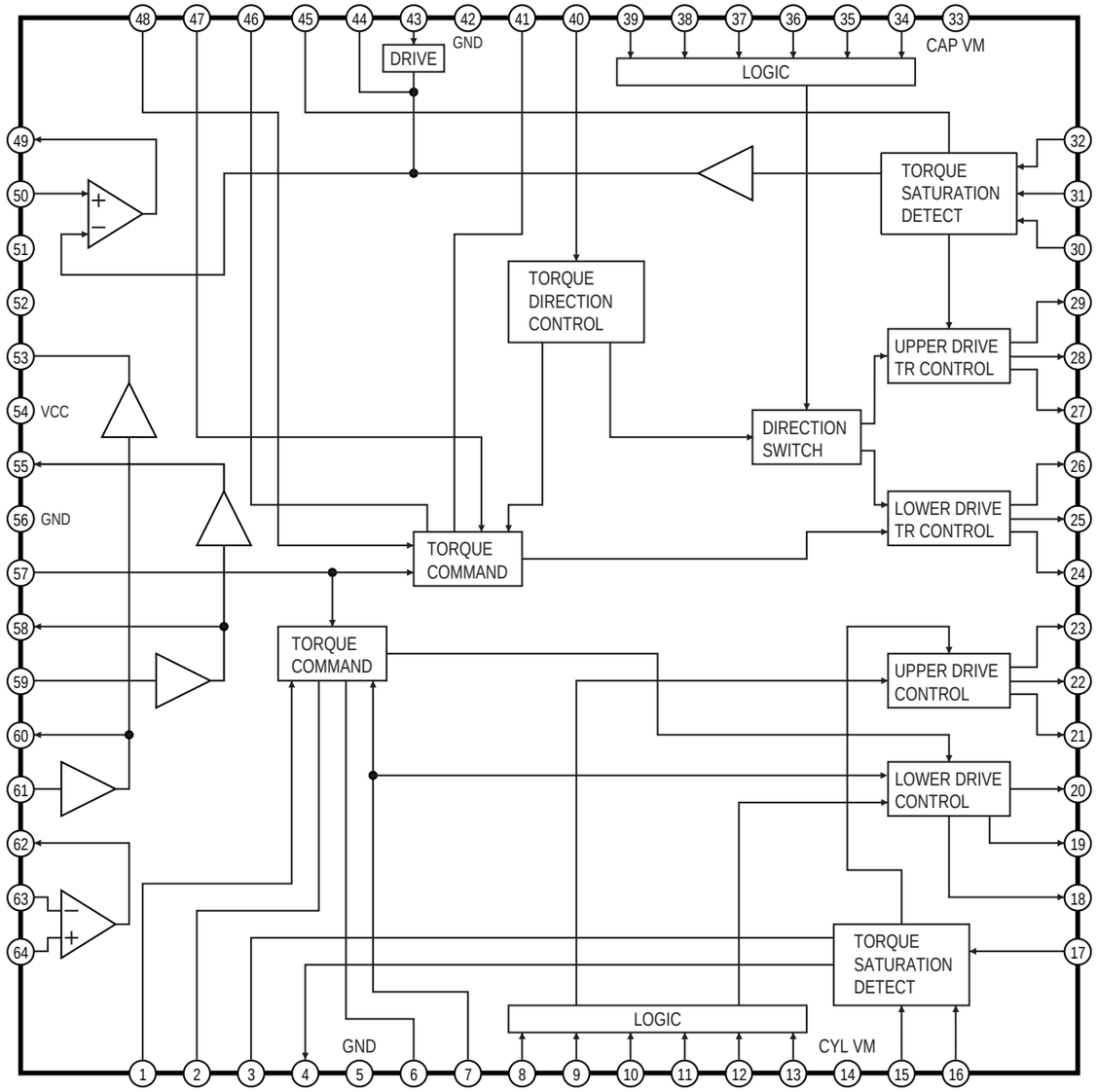
TO MAIN VII
96 CYL VM

TO MAIN I
15 CYLINDER ON(L)
25 CYL SPEED ERROR
27 CYL PG
26 CYL FG
18 CAP SPEED ERROR

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/16W.

LSJB8024

IC2001 CYLINDER/CAPSTAN MOTOR DRIVE CONTROL IC-DETAIL BLOCK DIAGRAM, AN3897FH



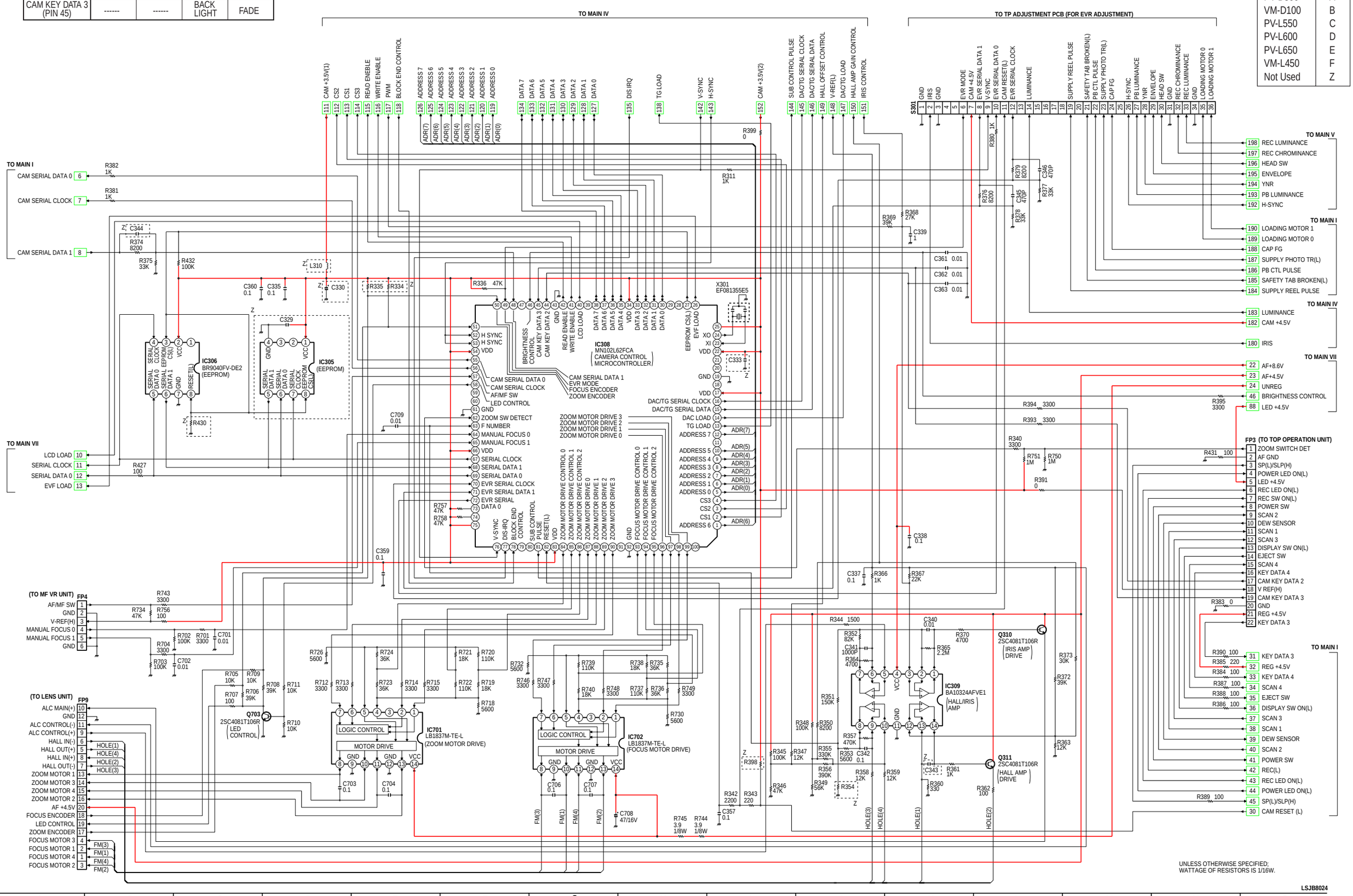
IC308 KEY MATRIX CHART

VOLTAGE	0 ∽ 0.14V	0.71∽0.89V	1.56∽1.84V	2.41∽2.69V
CAM KEY DATA 2 (PIN 44)	EIS	DIGITAL ZOOM	------	H.S. SHUTTER
CAM KEY DATA 3 (PIN 45)	------	------	BACK LIGHT	FADE

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z



2 PREVENTION OF ELECTRO STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   CAUTION :

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

3 X-RADIATION (Model: B, C, D, E, F)

WARNING :

1. The potential source of X-Radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10 kV without causing X-Radiation.

   NOTE :

   It is important to use an accurate periodically calibrated high voltage meter.
3. Measure the High Voltage. The meter (electrostatic type) reading should indicate 2.2 kV±0.1 kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

REC VIDEO SIGNAL
PB VIDEO SIGNAL

UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SA1576A106R,
NPN TRANSISTORS IS 2SC4081T106R,
WATTAGE OF RESISTORS IS 1/16W.

TO MAIN I
V-LOCK PULSE 54
ROTARY SW 48
D/A LOAD 57
D/A SERIAL DATA 56
D/A SERIAL CLOCK 55
OSD DATA 58
OSD(DATE/TIME) DATA 59
HEAD AMP SW 49
HEAD SW 53
VIDEO DELAY REC(H) 51
FLYING ERASE ON(L) 52
VIDEO 60
ENVELOPE DET 50
ENV-VOLTAGE 47

TO MAIN VI
AUDIO EE(H) 108
AUDIO FADE CONTROL 109
SLP(H) 110

TO MAIN IV
AUDIO EE(H) 92
REG +4.5V(1) 4

TO MAIN VII
REG +4.5V 93
VIDEO 94
LUMINANCE 97
R-Y 98
B-Y 99
REG +4.8V 100

TO MAIN IV
LUMINANCE 5
CHROMINANCE 3

TO MAIN III
196 HEAD SW
197 REC-CHROMINANCE
198 REC-LUMINANCE
195 ENVELOPE
193 PB LUMINANCE
194 YNR
192 H-SYNC

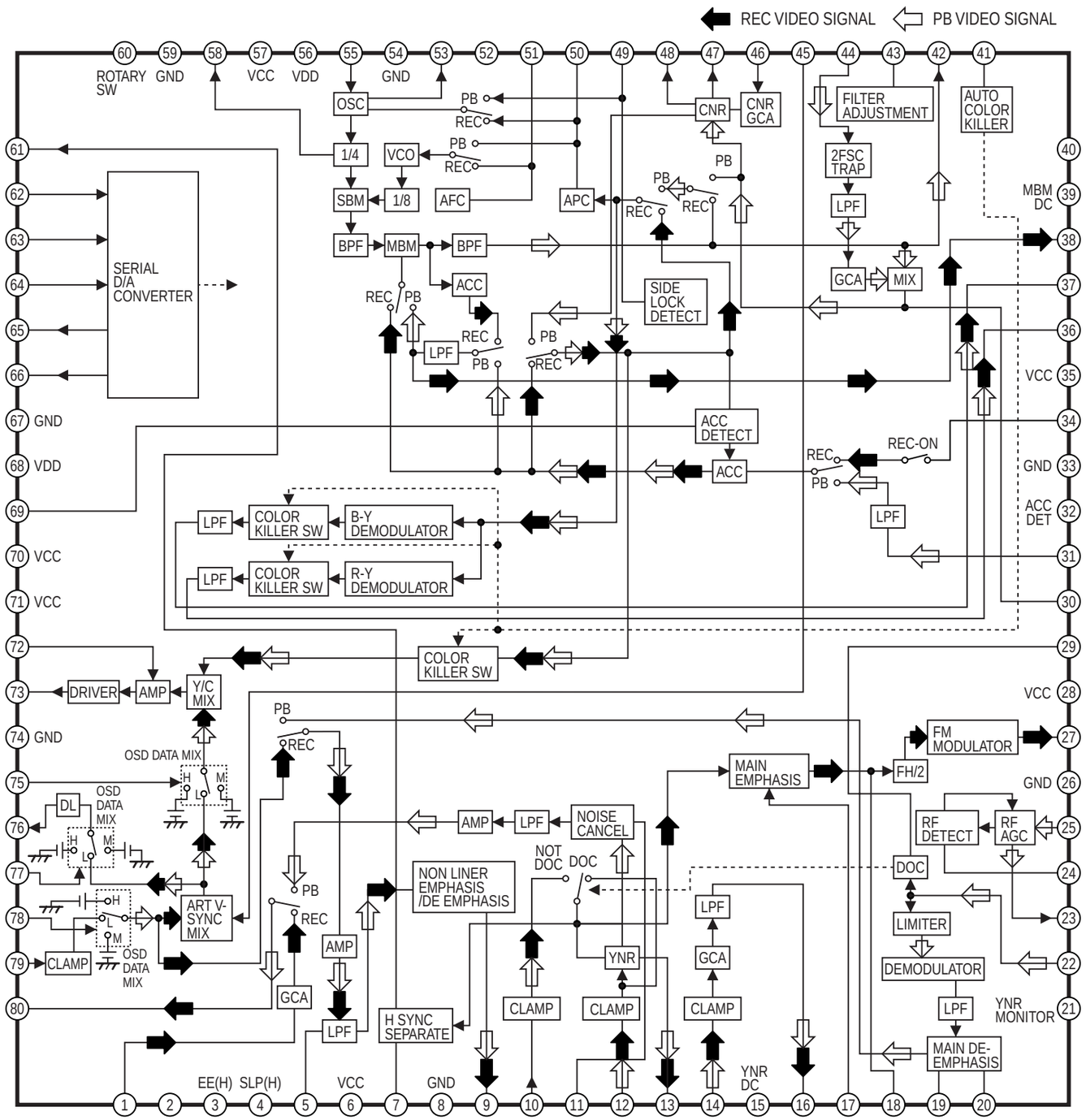
TO MAIN II
154 CYL FG(-)
153 CYL FG(+)
157 VH-
158 VH+
155 CYL PG
168 VH-
165 H2+
160 VH+
164 H2-
169 H3+
159 VH+
167 H3-
163 H1+
161 VH+
162 H1-
170 MAIN COIL 1
156 MAIN COIL 2
166 MAIN COIL 3

TO CYLINDER UNIT
FP6
39 MAIN COIL 3
38 MAIN COIL 3
37 MAIN COIL 2
36 MAIN COIL 2
35 MAIN COIL 1
34 MAIN COIL 1
33 H1-
32 VH+
31 H1+
30
29 H3-
28 VH+(H3)
27 H3+
26
25 H2-
24 VH+
23 H2+
22 VH-
21 CYL PG
20 VH+
19 VH-
18 CYL FG(+)
17 CYL FG(-)
16 GND
15 GND
14 GND
13 GND
12 REG +4.5V
11 REG +4.5V
10 FLYING ERASE ON(L)
9 HEAD SW
8 HEAD AMP SW
7 REG +4.5V
6 REG +4.5V
5 VIDEO DELAY REC(H)
4 ENVELOPE DET
3 ENV-VOLTAGE
2 REC VIDEO
1 PB VIDEO

IC3002 MN38663S TWIN CCD 1H DELAY
IC3001 AN2401NFH LUMINANCE/CHROMINANCE REC/PB PROCESS
ROTARY SW
D/A CONVERTER
REC/PB CHROMINANCE SIGNAL PROCESS
REC/PB LUMINANCE SIGNAL PROCESS
AUTO COLOR KILLER
B-Y DEMODULATOR
R-Y DEMODULATOR
Y/C MIX ART V/H MIX
CHROMA COMB
DROP OUT COMPENSATOR
CHROMA PHASE COMPENSATOR
Q3003 (BUFFER)
Q3004 2SC3931 CHROMA PHASE COMPENSATOR
Q3005 CHROMA PHASE COMPENSATOR
Q3026 (BUFFER)
Q3027 (REC Y AMP)
Q3021 (REC Y AMP)
Q3022 (REC C AMP)
Q3028 (BUFFER)
Q3029 (BUFFER)
FL3001 VLFW0041
X3001 VSXW0087
WF5 WF6 WF7 WF8 WF9 WF10 WF11 WF12 WF13 WF14

LSJB8024

IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN2401NFH



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (CAMERA SECTION)

MODE / PIN NO.	CAMERA
IC301	
1	0.1
2	---
3	---
4	---
5	---
6	---
7	---
8	---
9	---
10	---
11	---
12	---
13	---
14	---
15	3.5
16	0
17	---
18	---
19	---
20	---
21	---
22	---
23	---
24	---
25	---
26	---
27	0
28	3.5
29	---
30	---
31	---
32	---
33	---
34	---
35	---
36	---
37	---
38	---
39	0
40	0
41	0
42	0
43	0
44	---
45	0.1
46	1.8
47	---
48	---
49	---
50	3.3
51	0
52	3.5
53	0
54	0.1

MODE / PIN NO.	CAMERA
55	3.5
56	0
57	3.5
58	---
59	---
60	0
61	3.5
62	---
63	---
64	---
65	---
66	---
67	---
68	---
69	1.7
70	0
71	0
72	2.0
73	1.1
74	1.8
75	3.5
76	0
77	3.2
78	2.9
79	0
80	3.5
81	1.8
82	1.1
83	0
84	1.8
85	3.5
86	0
87	0
88	---
89	1.7
90	1.8
91	0
92	0
93	3.5
94	---
95	---
96	3.5
97	0.1
98	1.1
99	3.2
100	0
101	0.2
102	0.4
103	3.5
104	3.5
105	---
106	0
107	3.5
108	1.8
109	3.5

MODE / PIN NO.	CAMERA
110	1.4
111	3.3
112	1.9
113	0
114	3.5
115	0.4
116	0.4
117	0.2
118	0.3
119	0
120	3.5
121	0.4
122	0.2
123	3.5
124	0.8
125	1.5
126	2.8
127	0.5
128	0.6
129	0.8
130	1.7
131	0.8
132	2.2
133	0.5
134	0
135	3.6
136	1.0
137	---
138	1.7
139	0
140	0
141	0
142	0
143	0
144	0
IC306	
1	---
2	3.5
3	0.3
4	3.5
5	3.5
6	0.7
7	0.4
8	3.5
IC308	
1	
2	0.1
3	---
4	---
5	2.8
6	1.5
7	0.8
8	3.5
9	0.2
10	0

MODE / PIN NO.	CAMERA
11	0
12	0.2
13	3.5
14	---
15	0.4
16	3.4
17	3.5
18	1.6
19	0
20	0
21	3.4
22	---
23	1.0
24	1.8
25	3.5
26	0
27	3.5
28	0
29	0
30	0.8
31	1.9
32	0.7
33	0.7
34	---
35	---
36	0.6
37	0.7
38	0.8
39	0
40	0
41	3.5
42	3.5
43	3.5
44	0.8
45	0.8
46	0.9
47	0
48	0.5
49	3.3
50	2.8
51	2.6
52	0.4
53	0.4
54	---
55	---
56	3.5
57	3.2
58	0
59	0
60	0
61	0
62	1.8
63	2.7
64	0.9
65	1.0

MODE / PIN NO.	CAMERA
66	3.5
67	0
68	1.9
69	3.5
70	1.7
71	0.2
72	3.5
73	3.2
74	3.2
75	---
76	0.2
77	0
78	0
79	0.6
80	0.6
81	0
82	3.4
83	3.5
84	3.5
85	3.5
86	---
87	0
88	0
89	0
90	0
91	0
92	0
93	---
94	3.5
95	---
96	---
97	0
98	0
99	0
100	0
IC309	
1	2.8
2	1.5
3	1.9
4	8.1
5	1.3
6	1.4
7	1.4
8	2.5
9	0.9
10	1.2
11	0
12	0.7
13	0.7
14	0.3
IC602	
1	0
2	1.7
3	1.7
4	0.4

MODE / PIN NO.	CAMERA
5	1.6
6	1.5
7	---
8	0.7
9	0.7
10	0.6
11	0.6
12	0.9
13	0.2
14	0.4
15	0.1
16	---
17	0.4
18	0.2
19	---
20	3.2
21	---
22	1.2
23	0
24	0
25	3.5
26	3.5
27	0.2
28	0.2
29	3.3
30	0.4
31	3.5
32	3.5
33	3.5
34	0
35	1.0
36	0.3
37	0.3
38	3.5
39	---
40	0
41	---
42	0.7
43	1.1
44	0.1
45	0.2
46	0.2
47	1.5
48	---
49	1.6
50	0.3
51	---
52	---
53	---
54	---
55	---
56	3.5
57	3.5
58	1.6
59	1.6

MODE / PIN NO.	CAMERA
60	---
61	3.5
62	3.5
63	3.5
64	3.5
IC603	
1	-8.1
2	-8.0
3	-0.2
4	0
5	0.4
6	3.5
7	0.1
8	3.5
9	0.1
10	3.5
11	---
12	3.3
13	3.5
14	3.3
15	0
16	15.0
17	-7.6
18	-7.6
19	0
20	15.0
IC605	
1	0
2	1.9
3	---
4	---
5	1.7
6	4.4
7	1.8
8	1.9
9	1.8
10	3.5
11	0.2
12	0
13	---
14	---
15	---
16	---
17	3.3
18	1.7
19	3.3
20	1.2
21	0.3
22	0.2
23	---
24	0.7
25	0.1
26	0
27	0.4
28	2.7

MODE / PIN NO.	CAMERA
29	4.4
30	---
31	2.1
32	---
33	2.0
34	2.0
35	0
36	4.4
37	0.3
38	2.1
39	2.1
40	4.4
41	0
42	2.5
43	2.7
44	2.4
45	0.1
46	2.0
47	3.3
48	0.4
IC701	
1	0.2
2	0.4
3	---
4	0.9
5	0.9
6	0.1
7	0.2
8	0.5
9	0
10	0.5
11	0.5
12	0
13	0.5
14	7.2
IC702	
1	0.1
2	0.1
3	0.5
4	0.7
5	0.9
6	0.1
7	0.1
8	0.5
9	0
10	0.6
11	0.6
12	0
13	0.6
14	7.2
Q301	
E	2.5
C	4.5
B	3.2

MODE / PIN NO.	CAMERA
Q302	
E	1.5
C	3.2
B	2.2
Q303	
E	1.8
C	0
B	1.2
Q305	
E	3.0
C	4.5
B	3.1
Q306	
E	2.2
C	4.5
B	2.9
Q307	
E	2.6
C	4.5
B	3.1
Q310	
E	3.4
C	4.5
B	2.2
Q311	
E	2.0
C	4.5
B	2.7
Q617	
E	1.3
C	4.4
B	1.9
Q703	
E	0
C	3.3
B	1.6
TP601	1.6

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE / PIN NO.	REC	PLAY
IC1001		
1	0.2	0.1
2	1.7	1.7
3	1.2	1.3
4	1.3	1.2
5	1.0	5.6
6	1.3	1.3
7	1.2	1.2
8	2.1	1.9
9	1.5	1.4
10	0.2	0.2
11	6.9	6.9
12	7.3	7.3
13	3.9	4.0
14	7.0	7.1
15	2.4	2.4
16	6.9	6.9
17	6.6	6.7
18	0.4	0.4
19	0.5	0.5
20	6.5	6.6
21	6.8	6.7
22	1.8	1.8
23	7.1	7.1
24	1.9	1.9
25	6.8	6.6
26	6.5	6.5
27	0.4	0.4
28	0.2	0.2
29	1.6	1.6
30	0.9	1.2
31	1.2	1.2
32	1.2	0.2
33	0.9	0.2
34	1.0	1.5
35	1.0	0.1
36	1.0	0
37	6.9	7.0
38	2.4	2.4
39	0	0
40	0	0
41	---	---
42	0	0
43	---	---
44	1.0	1.0
45	1.6	1.6
46	2.4	2.4
47	1.7	1.6
48	0	2.4
IC3001		
1	1.7	2.6
2	---	---
3	3.7	0.1
4	0.1	0.1
5	2.1	1.9
6	4.5	4.5
7	2.0	2.3
8	0	0
9	2.1	0.3
10	2.1	2.1
11	0.3	1.1
12	0	2.1
13	1.5	2.2
14	2.0	2.2
15	2.7	1.6
16	0.2	2.2
17	2.2	2.1
18	2.2	2.1
19	2.5	3.0
20	2.1	1.5
21	2.2	2.7
22	2.7	2.5
23	3.4	2.0
24	2.7	2.9
25	2.5	2.8
26	0	0
27	3.2	3.6
28	4.4	4.4
29	2.3	2.3
30	0	2.1
31	2.1	2.0
32	2.9	3.0
33	0	0
34	2.4	2.9
35	4.5	4.5
36	2.5	2.5
37	2.5	2.5
38	0.3	0.4
39	2.8	2.7
40	0.2	2.3
41	1.3	1.3
42	0.8	2.2
43	3.0	3.0
44	0.9	2.8
45	0.2	0.2
46	---	---
47	---	---
48	---	---
49	1.8	1.9
50	2.0	2.0
51	2.1	2.0
52	4.5	4.5
53	2.2	2.2
54	0	0
55	2.7	2.7
56	1.2	3.6
57	4.5	4.1
58	3.0	3.0
59	0	0
60	4.3	2.7
61	0.5	0.5
62	0	0.4
63	4.5	4.5
64	4.5	4.5
65	0.3	1.9
66	---	---
67	0.6	0
68	3.6	3.6
69	2.1	3.6
70	4.5	4.5
71	4.5	4.5
72	1.8	4.5
73	2.1	2.8
74	0	0
75	0.6	0.2
76	2.3	3.7
77	0.3	0.1
78	0.1	0.1
79	2.5	2.9
80	2.1	2.8
IC3002		
1	1.0	2.1
2	0	0
3	4.5	4.5
4	1.9	2.8
5	0	0
6	1.8	2.6
7	1.6	1.6
8	2.8	2.8
9	4.5	4.5
10	0	0
11	2.5	2.8
12	2.4	2.5
13	1.8	2.9
14	0	0
15	2.5	2.7
16	4.5	4.5
17	0	0
18	2.0	2.2
19	2.3	2.3
20	0.9	2.0
IC4001		
1	2.2	2.3
2	2.3	2.3
3	---	---
4	2.3	2.3
5	0.6	0
6	0.2	1.3
7	1.7	1.7
8	0.1	0.1
9	2.3	2.3
10	4.0	3.7
11	3.7	0
12	2.3	2.3
13	0	4.5
14	2.3	2.3
15	0.1	0
16	0.1	1.4
17	1.2	0
18	2.9	2.7
19	0	0
20	0	0
21	---	---
22	0	0
23	0	0
24	1.7	1.7
25	0.4	1.1
26	1.6	1.7
27	4.5	4.5
28	1.7	1.7
29	4.5	4.5
30	1.7	1.7
31	2.3	2.3
32	2.3	2.3
Q1001		
E	7.2	7.1
C	7.1	7.0
B	0.1	0.1
Q1002		
E	0	0
C	0	0
B	-0.6	-0.6
Q1003		
E	2.3	2.3
C	0	0
B	1.6	1.6
Q1005		
E	7.2	7.1
C	4.5	4.5
B	6.7	6.6
Q1006		
E	7.2	0
C	3.6	3.6
B	6.8	0
A	0	0
Q1007		
E	0	0.1
C	0	0.1
B	7.0	6.9
Q1008		
E	7.2	7.1
C	4.6	4.6
B	6.6	6.6
A	0	0
Q1009		
E	6.1	0.1
C	1.6	0.1
B	6.8	6.7
A	0	0
Q1010		
E	5.9	5.6
C	0	0
B	6.1	5.9
Q1011		
E1	1.9	1.9
C1	6.6	6.5
B1	2.4	1.3
E2	1.9	1.4
C2	0.2	4.8
B2	0.1	2.5
Q1012		
E	7.2	7.1
C	4.8	4.8
B	6.6	6.5
Q1014		
E	7.2	7.0
C	7.1	7.0
B	1.5	6.3
Q1015		
E	3.9	3.8
C	6.5	6.3
B	4.5	4.5
Q1020		
E	4.6	4.6
C	0	2.0
B	4.6	4.6
Q1021		
E	0	0
C	4.6	4.4
B	0.1	0.9
Q1101		
E	7.2	7.1
C	1.7	1.5
B	7.2	7.1
Q1102		
E	0	0
C	7.8	7.1
B	-0.1	0
Q1103		
E	7.2	7.1
C	7.2	7.1
B	7.2	0.1
Q1104		
E	0	0
C	0	0.1
B	0	0
Q1105		
E	7.2	7.1
C	0	0.7
B	7.2	0.3
Q1106		
E	0	0
C	0.2	0
B	0.1	0
Q3003		
E	4.1	2.6
C	0	1.6
B	4.3	2.0
Q3004		
E	0	1.9
C	3.4	3.8
B	3.3	2.6
Q3005		
E	0	3.2
C	4.5	4.5
B	3.4	3.8
Q3021		
E	1.2	1.2
C	4.8	4.8
B	1.7	1.7
Q3022		
E	1.7	0.1
C	4.8	4.8
B	2.3	0.4
Q3027		
E	1.7	1.8
C	4.8	4.8
B	2.3	2.3
Q3028		
E	1.9	1.9
C	4.5	4.5
B	2.5	2.5
Q3029		
E	1.9	1.9
C	4.5	4.6
B	2.5	2.5
Q4002		
E1	5.3	3.5
C1	4.4	3.6
B1	4.6	3.8
E2	4.5	4.0
C2	1.4	4.5
B2	4.6	4.5
Q4003		
E	0.2	0
C	0	0
B	0.5	0.8
Q4004		
E	0.2	0
C	0	0
B	-0.5	0.8
Q4007		
E	0	0
C	-0.2	-0.5
B	0.1	1.1
Q4008		
E	0	0
C	0	0
B	0	0
Q4009		
E	0	0.4
C	0.2	4.3
B	0.2	0.1
Q4010		
E	4.6	4.5
C	0	0
B	4.3	5.0
Q4011		
E	0.2	1.4
C	4.5	4.5
B	0.2	1.9
TP1001	4.6	4.6
TP1002	4.6	4.6
TP1003	15.0	15.0
TP1004	8.1	8.2
TP1005	-8.1	-8.1
TP1006	3.6	3.6
TP1007	4.6	4.6
TP3001	2.7	2.7
TP3002	2.6	2.5
TP3003	0.4	2.0
TP3004	2.9	3.9
TP3005	3.2	3.6
TP3006	2.6	0.4
TP4001	1.4	1.4
TP4002	0	0
TP4003	0	0.1
TP4004	0.1	1.3

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY	STOP
IC2001			
1	2.2	2.0	2.0
2	0.6	0.6	0.1
3	0.6	0.7	0.1
4	2.9	3.0	2.9
5	0	0	0
6	0	0	0
7	0.1	0.1	4.6
8	2.3	2.3	2.3
9	2.3	2.3	2.3
10	2.2	2.2	2.3
11	2.3	2.3	2.3
12	2.3	2.3	2.3
13	1.8	2.3	2.3
14	7.1	7.0	7.3
15	1.6	1.9	0
16	2.1	2.0	0
17	1.6	1.9	0
18	0.4	0.9	0.7
19	0.6	0.5	0.7
20	0.4	0.7	0.1
21	6.8	6.6	6.8
22	6.7	6.5	6.8
23	6.7	6.6	6.8
24	0.6	0.6	0.1
25	0.4	0.6	0.1
26	0.4	1.3	0
27	1.6	1.1	4.2
28	1.7	7.0	4.2
29	1.6	2.0	4.3
30	0.7	2.0	0
31	0.7	0.9	0
32	0.7	0.9	0
33	1.6	1.8	6.5
34	2.2	2.2	2.2
35	2.2	0.7	2.2
36	1.8	0.8	1.7
37	1.7	0.8	1.7
38	1.2	1.2	1.2
39	1.2	1.2	1.2
40	0.1	0.7	2.3
41	0	0	0
42	0	0	0
43	0	0.1	0
44	2.4	0.6	4.2
45	0.7	0.7	0.1
46	0.6	0.6	0
47	0.3	0.6	0.2
48	2.2	2.1	2.3
49	6.0	5.4	7.2
50	2.3	2.3	2.3
51	0	0	0
52	4.5	4.5	4.5
53	2.2	1.6	0.7
54	---	---	---

MODE / PIN NO.	REC	PLAY	STOP
55	0.6	0.7	0.7
56	0	0	0
57	2.3	2.3	2.3
58	2.3	2.3	2.3
59	2.3	1.3	1.9
60	2.3	2.3	2.3
61	2.1	2.2	2.3
62	---	---	---
63	---	---	---
64	---	---	---
IC2002			
1	0.7	0.9	0
2	1.4	4.9	3.4
3	0.7	0.9	0.3
4	1.4	1.1	3.4
5	0.7	0.9	0
6	1.3	4.2	3.4
7	1.6	1.1	6.4
8	0.7	1.1	0
9	0.5	0.8	0.1
10	0.7	0.9	0
11	0.5	0.4	0.1
12	0.7	0.9	0
13	0.4	0.4	0.1
14	0	0	0
IC2003			
1	0	1.9	0
2	6.8	2.5	6.8
3	0	4.6	0.3
4	6.8	8.9	6.8
5	0	2.0	0
6	6.8	9.2	6.8
7	7.2	7.0	7.2
8	0	1.9	0
9	0.7	0.4	0.7
10	0	1.9	0
11	0.7	0.9	0.7
12	0	2.0	0
13	0.7	0.4	0.7
14	0	0	0
IC6001			
1	2.7	2.7	3.7
2	4.5	2.2	3.3
3	4.1	4.6	0.3
4	0.3	0.3	0.3
5	3.2	3.3	3.3
6	4.5	4.5	4.5
7	0.1	0.1	0.1
8	0.1	0.1	0.1
9	3.7	3.7	0.2
10	3.8	0.1	0
11	3.5	4.6	3.5
12	1.8	1.5	1.2
13	0.1	0.1	0.1
14	4.5	4.5	4.5

MODE / PIN NO.	REC	PLAY	STOP
15	4.2	4.5	3.7
16	4.6	4.5	4.6
17	4.5	4.4	4.5
18	0.1	0.1	0
19	0.1	0.1	4.6
20	2.5	0.1	4.5
21	0.1	0.1	2.3
22	0.1	0.1	0.1
23	4.6	2.3	4.6
24	0.1	0.1	0.1
25	4.4	4.5	4.6
26	4.6	0	0.1
27	4.6	0	0
28	---	---	---
29	0	4.5	4.6
30	0.3	0.3	0.2
31	---	---	---
32	4.6	0	4.6
33	2.2	2.0	2.3
34	2.8	0	3.7
35	---	---	---
36	4.6	4.5	4.6
37	2.3	2.3	1.5
38	1.6	2.3	2.3
39	0	0	0
40	0.3	0.8	0.8
41	---	---	---
42	4.6	4.5	4.6
43	4.1	0	3.9
44	4.6	0	1.6
45	0	0	1.5
46	---	---	---
47	4.6	4.5	4.6
48	0	0	0
49	4.6	4.5	4.6
50	2.1	0	3.0
51	4.6	4.5	4.6
52	2.3	0	2.2
53	2.3	2.3	2.3
54	---	---	---
55	0	0	0
56	0.1	0	4.6
57	0.1	1.4	0
58	0.1	0	0.1
59	0	0	0
60	0.1	0	0.1
61	0.3	1.4	0.1
62	3.2	4.1	3.5
63	0.1	0.1	0.3
64	0.3	0.3	4.2
65	2.2	2.2	0.4
66	0.7	0.78	0.4
67	2.3	2.3	2.3
68	2.3	2.3	2.3
69	2.3	1.4	2.3

MODE / PIN NO.	REC	PLAY	STOP
70	2.1	2.3	2.3
71	0	0	0
72	1.0	1.1	2.3
73	4.6	4.6	4.6
74	2.7	2.2	2.3
75	2.0	2.2	2.3
76	2.3	3.8	2.3
77	0.2	0.1	0.1
78	4.0	4.4	4.4
79	2.1	2.1	2.4
80	2.4	3.9	0.4
81	3.9	4.5	4.3
82	3.8	0	4.3
83	0.2	0.1	0.1
84	3.9	4.0	4.4
85	3.7	4.0	4.1
86	0.3	3.5	3.1
87	6.2	1.1	0.1
88	0.1	0.1	0.1
89	0.6	4.5	0.7
90	2.4	1.6	4.0
91	0.3	4.6	0.1
92	0.1	4.6	4.6
93	0.4	0.1	0.5
94	4.5	0.1	4.6
95	4.5	4.5	4.6
96	4.5	0.1	4.6
97	4.6	0.1	4.6
98	2.3	2.3	4.6
99	4.6	0.1	0.1
100	0.3	1.4	0.2
IC6002			
1	4.4	4.4	4.4
2	4.5	4.5	4.2
3	---	---	---
4	0	0	4.4
IC6005			
1	0.9	0.8	0.2
2	1.9	1.0	0.5
3	1.0	0.9	0.4
4	0	0	0
5	0.3	0.3	0.2
6	4.5	4.5	4.5
7	7.0	1.2	3.8
8	4.3	4.2	4.2
IC6006			
1	0	0	0
2	6.5	6.5	6.6
3	4.5	4.5	4.5
IC6007			
1	0	0	0
2	0	0	0
3	0.6	2.0	0.5
4	6.5	6.5	6.6
5	6.5	6.5	6.6

MODE / PIN NO.	REC	PLAY	STOP
6	0.1	0.1	0.1
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0.1	0
12	4.5	4.6	4.5
13	0	0	0
14	0.4	2.0	0.6
15	0	0	0
16	0	0	0
IC6203			
1	1.2	0	1.2
2	0	0	0
3	0	0	0
4	2.6	0	4.2
Q6004			
E	4.6	4.6	4.5
C	0.1	0.1	0.1
B	4.6	4.5	4.5
Q6005			
E	4.7	0	1.4
C	4.5	4.5	4.5
B	4.6	0	0
Q6008			
E	4.5	0	1.2
C	4.5	0.1	4.5
B	4.6	0	0
Q6009			
E	4.6	4.6	4.6
C	0.3	5.0	9.9
B	2.3	2.0	2.0
Q6010			
E	0	0	0
C	0	0.1	0.1
B	4.5	4.5	4.5
Q6011			
E	4.6	4.6	4.6
C	4.6	0.3	0
B	4.0	4.5	4.6
Q6012			
G	0	0	0
S	0	0	0
D	4.1	4.4	4.4
Q6013			
E	0.3	0.3	0.2
C	7.2	7.1	7.2
B	0.3	0.3	0.1
Q6018			
E	1.7	2.1	2.2
C	4.2	3.7	3.6
B	0.1	0.1	0.1

MODE / PIN NO.	REC	PLAY	STOP
Q6021			
E	6.8	6.8	6.8
C	6.8	6.9	6.6
B	6.1	6.2	5.9
Q6022			
E	0	0	0
C	0	0	0
B	0.6	0.6	0.6
Q6026			
E	6.8	6.8	6.6
C	6.8	6.8	6.6
B	2.9	2.9	2.8
Q6201			
E	4.5	4.5	4.5
C	4.5	4.5	4.5
B	3.8	3.8	3.8
Q6202			
E	0	0	0
C	0	0	0
B	0.6	0.6	0.6
TP6001	0.5	0.5	0.3
TP6003	0.1	0.1	0.1
TP6004	3.8	---	4.4
TP6006	0.9	3.8	1.2
TP6007	3.3	---	4.1
TP6010	4.5	4.6	4.5
TP6011	4.2	4.4	2.5
TP6012	4.1	4.5	4.5
TP6014	4.4	4.4	2.5
TP6015	4.5	4.6	4.6
TP6020	4.1	4.2	4.2
TP6021	1.0	3.4	3.7
TP6022	1.0	3.7	0
TP6023	0.1		0.1
TP6201	2.3	2.3	0.1
TP6202	2.3	2.3	2.3
TP6205	3.2	2.3	3.2
TP6206	3.4	2.3	3.2
TP6207	2.3	2.3	2.3
TP6208	0.8	0.5	0.7
TP6210	0.5	2.2	0.5
TP6212	1.6	1.9	0.1
TP6215	0.1	0	4.6
TP6216	4.6	0	0
TP6220	0.7	0.7	0

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

EVF C.B.A. (B,C,D,E,F)

MODE / PIN NO.	CAMERA
IC901	
1	2.0
2	4.5
3	2.0
4	0
5	2.0
6	0.6
7	0
8	4.2
9	3.7
10	0
11	1.8
12	4.4
13	2.6
14	1.9
15	1.8
16	2.2
Q901	
E	0
C	5.9
B	0.5
Q902	
E	2.9
C	-29.6
B	2.3
TP901	3.7
TP902	4.2

COLOR EVF A/B C.B.A. (A)

MODE / PIN NO.	CAMERA
IC901	
1	1.7
2	1.7
3	1.6
4	---
5	---
6	---
7	---
8	1.3
9	---
10	6.2
11	6.2
12	6.2
13	6.2
14	6.2
15	0
16	6.2
17	0
18	0
19	---
20	0.1
21	---
22	1.6
23	---
24	0
25	3.2
26	0
27	1.4
28	0
29	0.1
30	---
31	1.6
32	---
33	---
34	0
35	---
36	0.4
37	0.6
38	2.7
39	2.7
40	---
41	---
42	---
43	0
44	3.2
45	0
46	---
47	2.1
48	1.9
Q901	
S	0
D	2.7
G	1.2

MODE / PIN NO.	CAMERA
Q902	
E	0
C	3.9
B	0.7
Q903	
E	3.3
C	4.6
B	3.9
Q904	
E	4.1
C1	4.6
B1	4.7
C2	16.0
B2	12.3
Q905	
E	15.0
C	12.3
B	14.7
TP901	6.2
TP902	6.2
TP903	6.2
TP904	0.4
TP905	3.3
TP906	12.3

LCD C.B.A. (C,D,E,F)

MODE / PIN NO.	CAMERA
IC1201	
1	0.8
2	0.1
3	4.5
4	1.0
5	0.4
6	0
7	0.5
8	0.1
IC9001	
1	1.7
2	1.7
3	1.7
4	---
5	---
6	---
7	---
8	0.9
9	3.9
10	2.6
11	2.6
12	2.3
13	2.6
14	2.6
15	2.6
16	2.6
17	0.1
18	7.5
19	0.1
20	0.1
21	0.3
22	1.6
23	1.6
24	1.6
25	3.3
26	1.8
27	0.7
28	0.1
29	0.1
30	0.1
31	0.6
32	0.5
33	0.5
34	0.5
35	0.1
36	0.4
37	0.9
38	2.9
39	2.9
40	0.1
41	3.3
42	0.5
43	---
44	3.2
45	0.1

MODE / PIN NO.	CAMERA
46	2.3
47	2.0
48	1.9
IC9002	
1	0
2	-14.8
3	6.1
4	6.1
5	12.2
Q1202	
E	0.1
C	0.1
B	0.7
Q1203	
E	3.6
C	3.6
B	0.1
Q1204	
E	3.6
C	3.6
B	0.1
Q1205	
E	3.6
C	0.1
B	3.6
Q1206	
E	0.1
C	4.2
B	0.1
Q1207	
E	3.6
C	-15.4
B	3.7
Q1208	
E	15.0
C	15.5
B	15.5
Q1209	
E	15.0
C	15.5
B	15.5
Q1210	
E	0
C	0
B	0
Q1211	
E	3.7
C	3.8
B	4.3
Q1212	
E	0.1
C	4.8
B	0.1

MODE / PIN NO.	CAMERA
Q1213	
E	0.1
C	4.3
B	0.1
Q1214	
G	3.3
S	0
D	0
Q1215	
E	0
C	3.1
B	0
Q1216	
E	0
C	0
B	3.0
Q1217	
E	0
C	7.1
B	0.4
Q1218	
E	12.6
C	12.2
B	12.8
Q1219	
E1	12.2
C1	5.0
B1	5.2
E2	5.0
C2	0
B2	4.0
Q1220	
E	-14.8
C	-15.8
B	-15.0
Q1221	
E	7.6
C	12.6
B	7.5
Q1222	
E	0.1
C	7.6
B	0
Q9001(E)	
E	0.1
C	5.2
B	0.2
Q9002(E)	
E	0.1
C	5.2
B	0.2
Q9004(D,F)	
E	0.1
C	5.2
B	0.2

MODE / PIN NO.	CAMERA
Q9005 (D,F)	
E	0.1
C	5.2
B	0.2
Q9051(C,D,F)	
E	0.1
C	0
B	-0.2
Q9052(C,D,F)	
E	0
C	4.4
B	0
Q9101(E)	
E	0
C	0
B	1.0
Q9102(E)	
E	0
C	0
B	1.8
TP1201	3.3
TP1202	4.5
TP1203	12.2
TP1204	7.6
TP1205	0.1
TP1206	14.8
TP9001	2.6
TP9002	2.6
TP9003	2.6
TP9004	---
TP9005	0.1
TP9006	0.1
TP9007	0.3

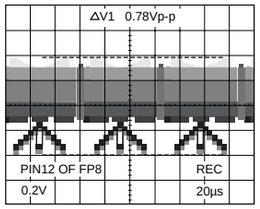
CCD C.B.A.

MODE / PIN NO.	CAMERA
IC601	
1	-7.5
2	-7.5
3	0
4	0
5	---
6	0
7	0
8	14.9
9	0
10	5.8
11	0
12	0.3
13	2.4
14	1.9
Q601	
E	2.4
C	14.9
B	0

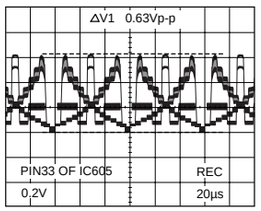
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F

MAIN C.B.A.



WF1



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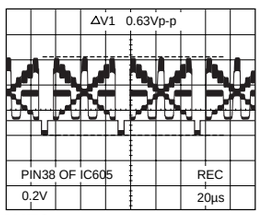
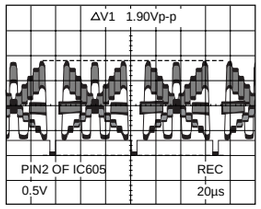


WF3



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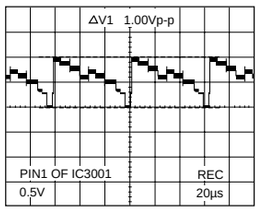
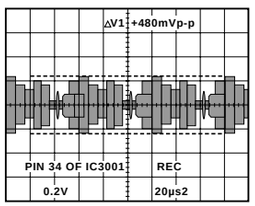
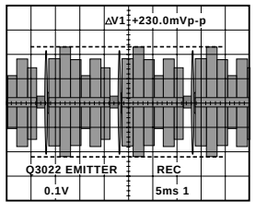


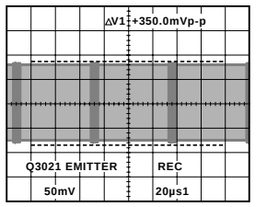
WF5



WF6



WF7



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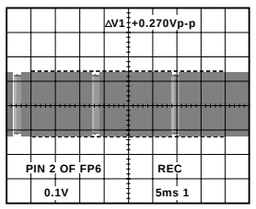
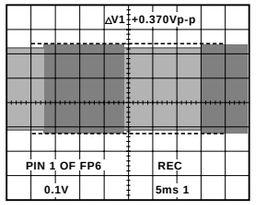


WF9



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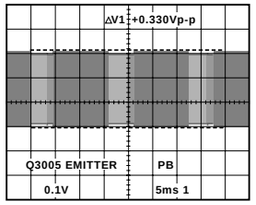

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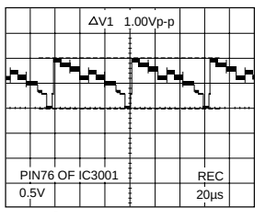

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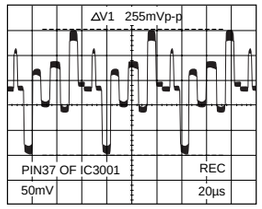
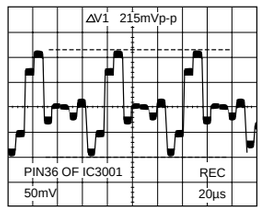
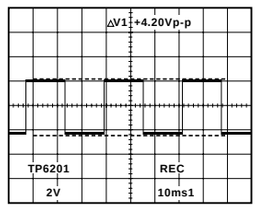


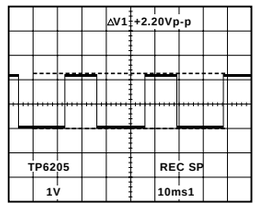
WF13



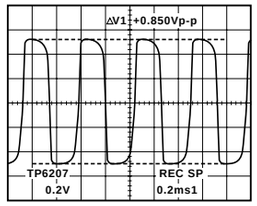
WF14



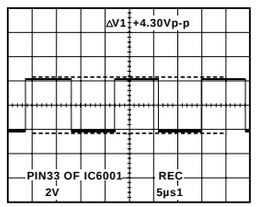
WF15



WF16

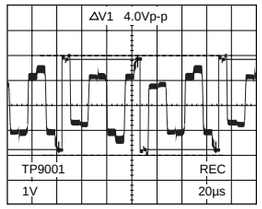


WF17

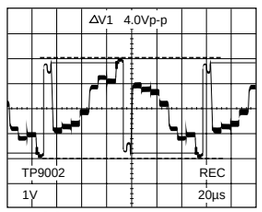


WF18

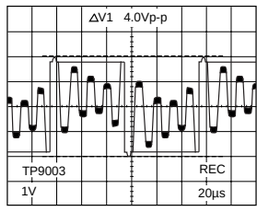
LCD C.B.A.



WF19



WF20



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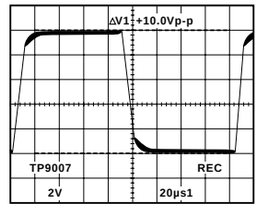


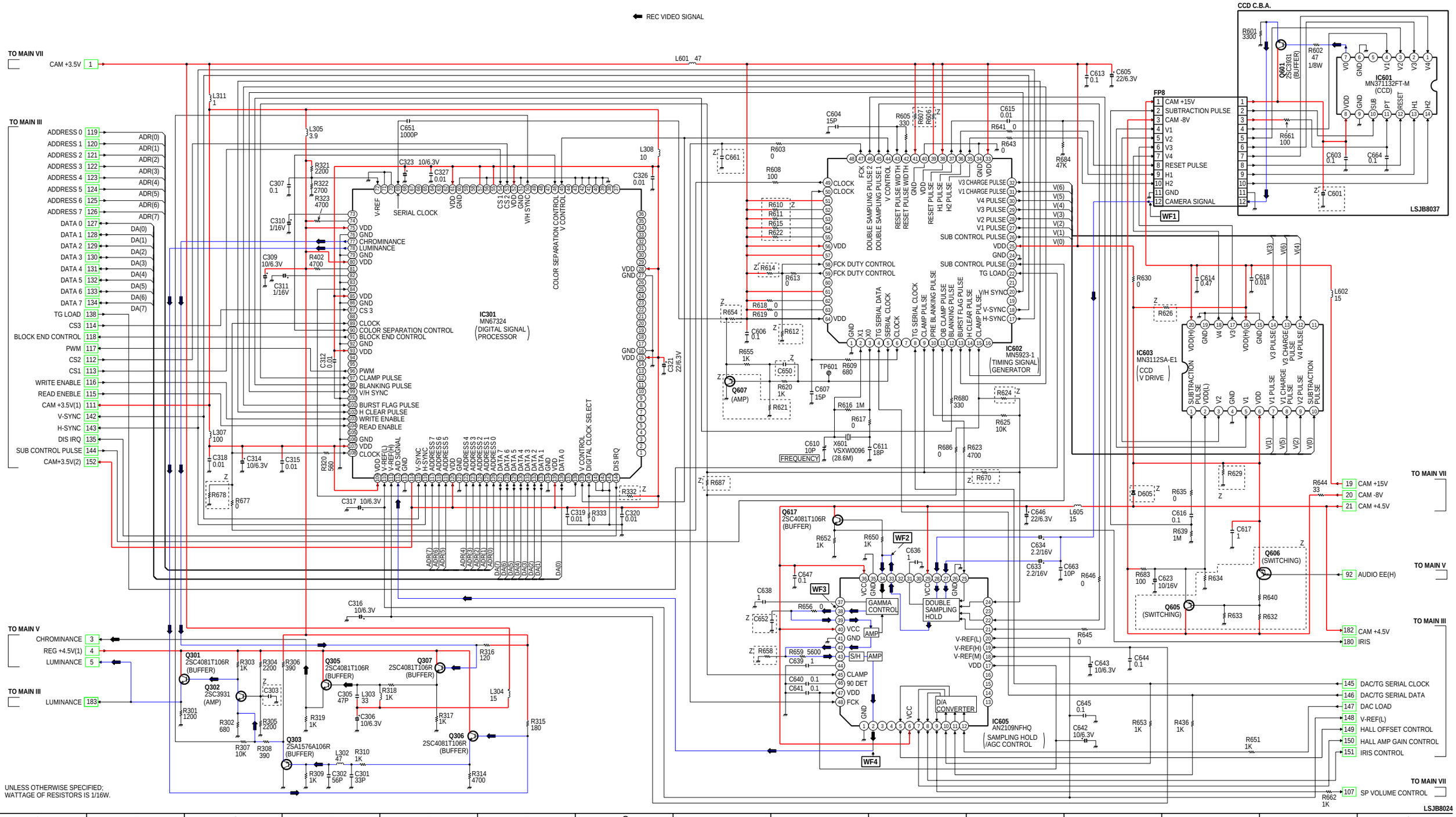
WF22

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

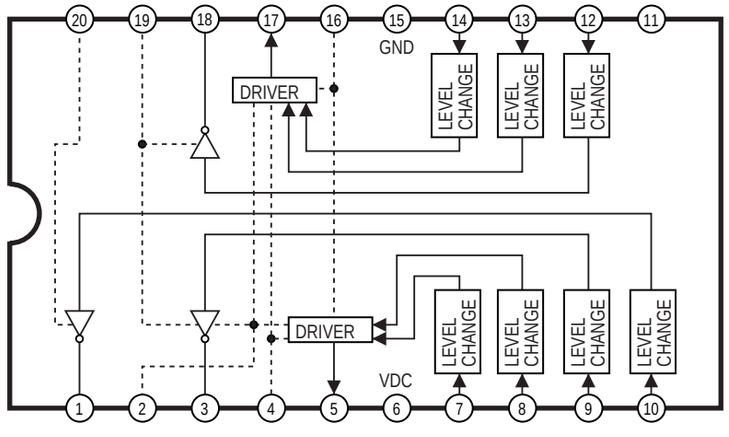
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-D300	A
VM-D100	B
PV-L550	C
PV-L600	D
PV-L650	E
VM-L450	F
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



IC603 CCD V DRIVE IC-DETAIL BLOCK DIAGRAM, MN3112SA-E1



IC605 SAMPLING HOLD/AGC CONTROL IC-DETAIL BLOCK DIAGRAM, AN2109FHQ